The International apple computer users' magazine

Windfall

Volume 2 No 10 April 1983 £1



THE IIe MEANS BUSINESS

SIX-PAGE GUIDE TO WORD PROCESSORS

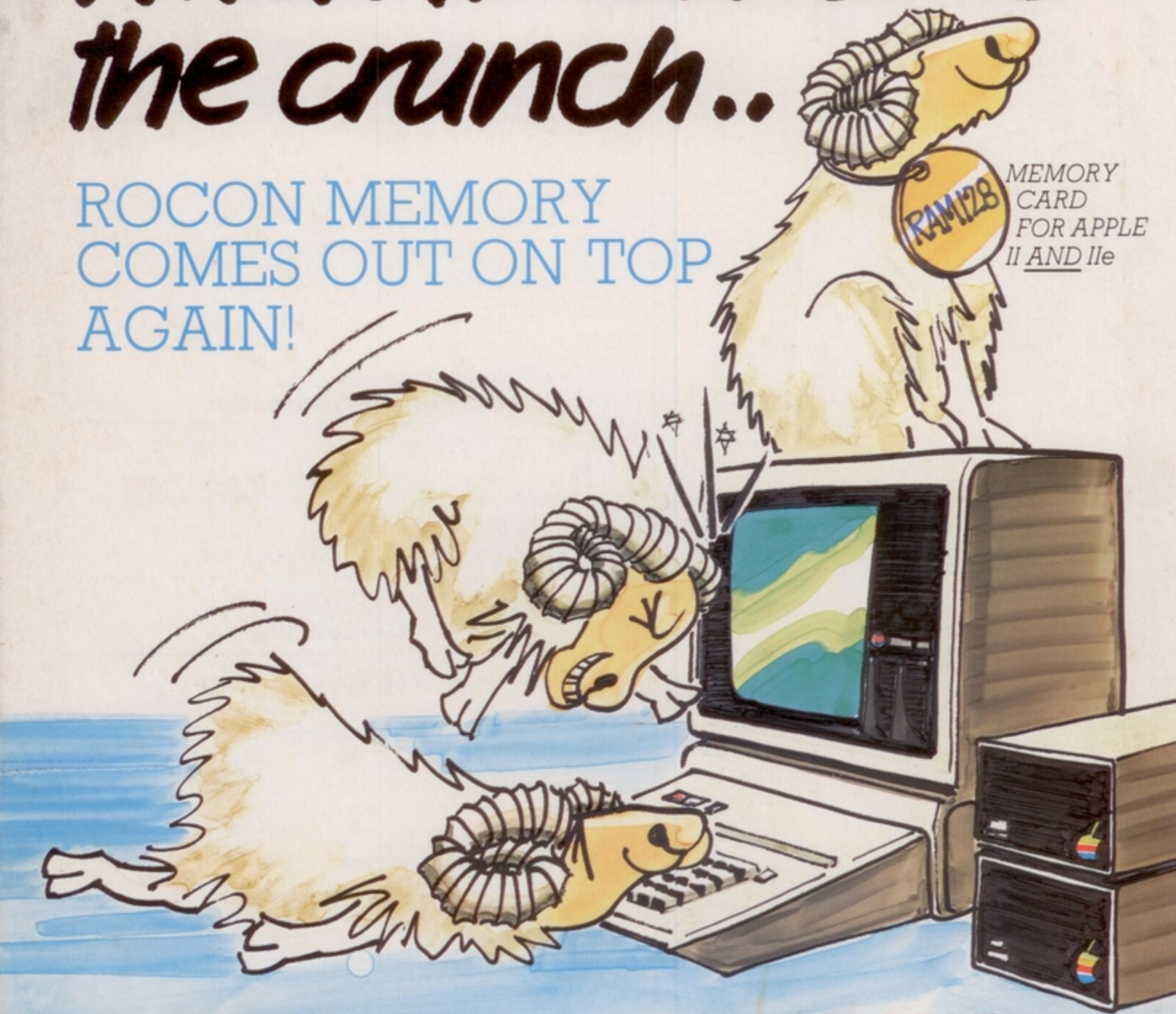
The economics of spreadsheets

SCOOP: Make your Apple 3.5 times faster

Omnis and Bookkeeper reviewed

When it comes to the crunch..

ROCON MEMORY COMES OUT ON TOP AGAIN!



MEMORY CARD FOR APPLE II AND IIe

LOWEST POWER (1 WATT)

- Lowest running temperature
- Highest reliability
- Use 4 RAM128 cards for ½ MByte RAMDISC

RAM128 SOFTWARE

- PASCAL
- BASIC
- 256K VISICALC
- DISC EMULATION
- ANIMATION

SPECIAL OFFER £245.00

ROCON RAM128

CAN BE USED WITH ROCON'S 80 COLUMN CORVUS VISICALC SYSTEM

rocon OXFORD

For further information contact

Rocon Ltd., Radley Road Industrial Estate, Radley Road, Abingdon, Oxon.

Telephone (0235) 24206
Telex 837723 Rocon G.
Telecom Gold



Vol. 2 No. 10 April 1983

Managing Editor
Derek Meakin

Art Editor
Peter Glover

News Editor
David Creasey

Technical Editors
Peter Brameld
Cliff McKnight
Max Parrott

Advertisement Manager
John Riding

Advertising Sales
John Snowden
Mike Hayes

Marketing Manager
Linda Dobson

Tel: 061-456 8383 (Editorial)
061-456 8500 (Advertising)
Telex: 667664 SHARET G

Published by:
Database Publications Ltd,
Europa House, 68 Chester Road,
Hazel Grove, Stockport SK7 5NY.

Subscription rates for 12 issues, post free:
£12 – UK
£13 – Eire (IR £16)
£18 – Europe
£15 – USA (surface)
£25 – USA (airmail)
£15 – Rest of world (surface)
£30 – Rest of world (airmail)

Trade distribution in UK and Ireland by Wells, Gardner, Darton & Co Ltd, Faygate, Horsham, West Sussex RH12 4SU. Tel: Faygate 444.

Writing for Windfall: Articles and programs relating to the Apple are welcome. Articles should preferably be typed or computer-printed, using double spacing. Unsolicited manuscripts, discs, etc, should be accompanied by a self addressed stamped envelope, otherwise their return cannot be guaranteed. Unless otherwise agreed, material is accepted on an all rights basis.

© 1983 Database Publications Ltd. No material may be reproduced in whole or in part without written permission. While every care is taken, the publishers cannot be held legally responsible for any errors in articles or listings.

Apple and the Apple symbol are the registered trade marks of Apple Computer Inc. Windfall is an independent publication and Apple Computer is not responsible for any of the articles in this magazine, nor for any of the opinions expressed.

LISTING

17 ***WHAT'S NEWS***
Inside look at the Apple world

21 ***THINK TANK***
Our forum for programmers

25 ***GAMESMANSHIP***
Tackle Type and learn a craft

29 ***WORD PROCESSORS***
Four packages reviewed

36 ***APPLETIPS***
They make programming easier

39 ***VISICALC***
Economics of electronic worksheets

41 ***BOOK REVIEW***
Assembly language programming

43 ***GONE FISHING***
Nine-year-old's game listing

47 ***APPLICATIONS***
Apples into pet food and pictures

48 ***APPLE IIe***
The thinking behind improvements

54 ***BEGINNERS, PLEASE***
Now start experimenting

58 ***OMNIS***
Re-engineered for humans

60 ***FEEDBACK***
Apple Pilot problems

62 ***STROBE 100***
Persistence produces fine graphics

65 ***APPLECART***
Make it CAT, not CAL

71 ***COMPUCOPIA***
Latest in soft and hardware

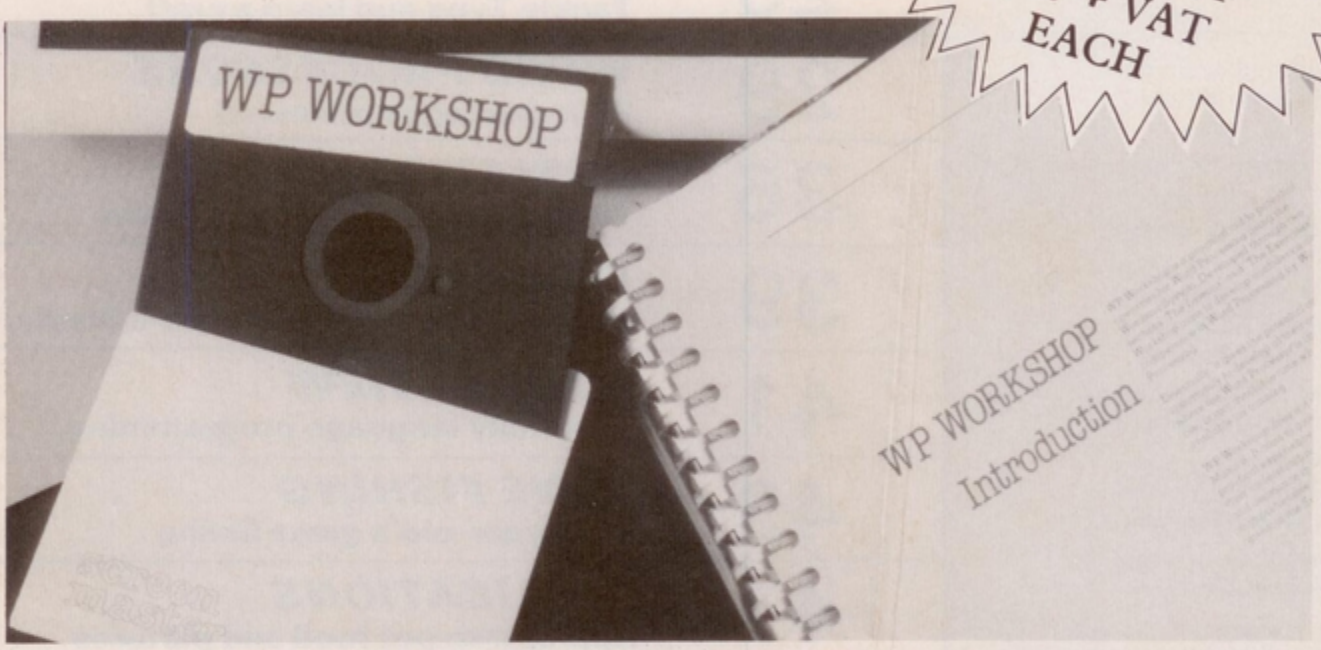
76 ***ACCOUNTING***
Hilderbay Bookkeeper reviewed

79 ***CP/M***
The friendlier approach

WP WORKSHOP

on apple®

WORDSTAR & MAILMERGE EDITIONS NOW ONLY £50 + VAT EACH



DISC BASED TRAINING SYSTEMS FOR ALL WORDSTAR VERSIONS EXCLUSIVELY FROM RANMOR.

WP WORKSHOP is a proven system of self tuition for the potential operator of Word Processors using the WordStar System. It is already in use in commercial and professional organisations and in universities and colleges throughout the UK.

Each WORKSHOP package is disk based. The Lessons and examples are all contained on a demonstration diskette. The new user learns the new skills through self demonstration and example; they learn to word process by word processing. Experience shows that the new operator can be using their new found skills within hours, and thereafter develop quickly into the more advanced skills of Word Processing.

In all situations, it allows each trainee to progress at their own pace, and where the Word Processor is in regular daily use, in any time which can be made available, even if only a few minutes each day, without making demands on the more experienced users.

For details of Wordstar Training Courses – Ring 0702 339262

WP WORKSHOP is a reusable system. It can be used to train both principal and back up operators as a new system is installed, and as its use becomes more widespread within an organisation.

WP WORKSHOP is a fully supported series of training packages. It is currently available in three editions; WORDSTAR, WORDSTAR 3 EDITION, and MAILMERGE EDITION. DATA STAR AND SUPERCALC EDITIONS shortly to be released.

Available directly from Ranmor Computing Ltd. and Pete & Pam Computers, New Hall Hey Road, Rossendale, Lancs 0706 227011.
RRP £50 plus VAT per edition, please state whether version 2 or 3 required.

Ranmor Computing Ltd.

Nelson House, 2 Nelson Mews, Southend-on-Sea, Essex SS1 1AL
Telephone: (0702) 339262
Telex: 995165 RANMOR G
DEALER ENQUIRIES WELCOME

sbd Software

Choose from over 100 titles with the SBD APPLE Spring Collection

ARCADE/ACTION GAMES

apple

Bandits	£22.00
Beer Run	£17.95
Cannonball Blitz	£22.00
Choplifter	£24.95
Computer Foosball	£17.95
Copts & Robbers	£22.00
County Fair	£22.00
Cyber Strike	£22.95
Crossfire	£19.95
David's Midnight	£24.95
Epoch	£22.00
Falcons	£22.00
Firebird	£22.00
Free Fall	£17.95
Fly Wars	£17.95
Gorgon	£24.95
Hadron	£22.00
High Orbit	£22.00
Horizons V	£24.95
Jawbreaker	£19.95
Kabul Spy	£22.00
Kamikaze	£23.50
Laff Pak	£22.00
Lazer Silk	£22.00
Lemmings	£17.95
Marauder	£22.00
Microwave	£22.95
Mouskattack	£22.00
Neptune	£22.00
Outpost	£17.95
Pegasus II	£19.95
Phantoms Five	£17.95
Photar	£22.00
Pulsar II	£17.95
Ribbit	£22.00
Russki Duck	£24.95
Skiing 3D	£17.95
Snack Attack	£22.00
Snake Byte	£17.95
Sneakers	£17.95
Space Eggs	£17.95
Swashbuckler	£24.95
Threshold	£24.95
Track Attack	£22.00
Twerps	£17.95
Type Attack	£24.95
Zenith	£24.95

ADVENTURE GAMES

apple

Adventure to Atlantis	£24.95
Ali Baba & 40 Thieves	£22.95
Blade of Blackpool	£24.95
Castle Wolfenstein	£22.00
Cranston Manor	£22.00
Escape from Rungistan	£17.95
Knights of Diamond	£21.00
Minotaur	£22.00
Mission Asteroid	£12.95
Mystery House	£14.95
Odyssey	£22.00
Robot War	£29.95
Soft Porn Adventure	£19.95
Terrorist	£22.00
The Dark Crystal	£24.95
The Wizard & Princess	£22.00
TIME ZONE	£55.00
Ultima II	£37.50
Ulysees & Gold Fleece	£22.00
Wizardry	£26.00

STRATEGY GAMES

apple

Cartels & Cutthroats	£29.95
Computer Air Combat	£45.00
Computer Ambush	£45.00
Computer Bismarck	£45.00
Cytron Masters	£29.95
Datestones of Ryn	£14.95
Dogfight II	£22.00
Galactic Gladiators	£25.95
Gaudal Canal Campaign	£45.00
L.A. Land Monopoly	£22.00
Napoleon's Campaign	£45.00
Pursuit of Graf Spee	£45.00
Road to Gettysburg	£45.00
S.E.U.I.S.	£29.95
Shattered Alliance	£45.00
Southern Command	£45.00
Temple of Apshai	£29.95
The Warp Factor	£29.95
Three Mile Island	£29.95
Torpedo Fire	£45.00
Zork I	£29.95
Zork II	£29.95

CARD & SPORTS GAMES

apple

Computer Golf	£22.00
Computer Foosball	£17.95
Cribbage	£14.95
Fastgammon	£17.95
Flight Simulator	£26.00
Olympic Decathelon	£22.00
Pinball	£22.00
Pool 1.5	£24.95
Sargon II Chess	£24.95
Trick Shot	£29.95

All prices plus VAT @ 15%

FOR ACCESS/BARCLAYCARD ORDERS, PHONE OUR GAMELINE ON 01-870 9275 (24 hour service)

NEW!

TRACKBALL JOYSTICK

Available for both Apple and Atari.

Now you can recreate authentic arcade manoeuvres in your own home with the new trackball joystick. 360° movements and fire button at your fingertips.



only £39.95

To **SBD Software, FREEPOST, OSIERS ROAD, LONDON SW18 1BR.**
Telephone: 01-870 9275 (24 hours)/01-870 9386

Please send me the following items:

Description	Price	VAT	Total
Add 75p for Postage and Packing			0.75

☐ I enclose cheque/postal order for Grand Total £

made payable to SBD Software

☐ Please debit my Access/Barclaycard (delete as app.) Number

☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ Exp Date

Name

Address

O10

FORMAT-80

WORD PROCESSING SO ADVANCED ANYONE CAN USE IT!

NOW AVAILABLE FOR THE //e AND THE][

REVIEW	WHAT THEY SAID
Business Systems and Equipment January 1982, p45	"... the system had justified itself in terms of cost again and again in the six months ..." "The instructions are so easily understood and even if one pressed an incorrect key the machine will not do anything inexplicable, or drastic. It's logical and self explanatory. I have yet to see a system as efficient ..."
Windfall July 1981, p42	"Pretty well guarantees to please your typists." "It is probably the easiest system for a standard typist to convert to ..." "Format-80 is a well thought out and useful package."
MicroDecision January 1983, p165	"For once no criticism of the manual." "I found Format-80 far easier to use than most other WP packages I have used ..." "... Format-80 gets full marks for being user friendly."
Practical Computing February 1983, p98	"I would rank the programs roughly as follows: 1= Format-80 and WordStar" "Format-80 ... is one of the word processors that I would feel confident about using for important work."
Personal Computer World August 1981, p119	"Secretaries would feel very at home with the system." "Format-80 is a friendly, well-designed word processing package ..."

FEATURES

What you see is what you get.
Built in mailing list.
Tutorial manual included.
Reference manual included.
True shift and shift lock.
Core resident.
Supports proportional spacing.
Automatic page numbering.
Selective search and replace.
Sorts mailing list.
Powerful editing commands.
Dynamic page breaks.
... and much, much more ...

FORMAT-80 is now available for the APPLE][and //e

Requirements: 64K Apple][or //e
Disc Drive, 80 Column Card

PRICE £199.00 + VAT

Available from your dealer or contact:

ELITE SOFTWARE COMPANY
2 Almorah Road, Heston,
Middlesex.
TW5 9AD.
Tel: 01-572 0453

FASTMOVIN PROFITMAKIN FILESHARIN NICERLOOKIN SPACESAVIN APPLESERVIN

MICROMITE



The Micromite Fileserver is a runaway success. When you're serving CP/M* Apples at faster than 78,000 characters per second it's not surprising. Whether it's storing 40 million characters on a single Winchester disk, or moving off dealer shelves into end-user environments, Micromite is the fastest Fileserver offering full File Lock security. And all in an attractive desktop unit.

Fill in the coupon, and we'll rush further information to you.

*Trademark of Digital Research Inc.

Micromite Computers, Regency House,
2 Rockstone Place, Southampton SO1 2EP. Tel (0703) 334144

Please tell me more about your Micromite Fileserver

Name _____

Position _____

Company _____

Address _____

_____ Tel _____ W

"When I need words . . . I use The WORD HANDLER"

It speaks for itself!



The Word Handler is the easiest word processor around . . . also the most sophisticated. The Word Handler is a single-key command word processing program that runs without hardware modifications to your Apple®, or Apple compatible computer.

Words can't describe how much I love the Word Handler but let me tell you the Word Handler gives me unlimited tabs, incremental spacing, vertical spacing and a two character format. My Word Handler comes with a simple-to-understand manual, complete customer service and free, yes, **free** upgrades.

The Word Handler's many print features are displayed on the screen so I can see at a glance exactly what will be printed. For example: underlining, **bold** super^script^, UPPER / lower case. Even / normal justification.

See your Apple, or Apple compatible computer dealer for sophisticated simplicity . . . The Word Handler.

Let it speak for you.

Apple is a registered trademark, of APPLE COMPUTER, INC.

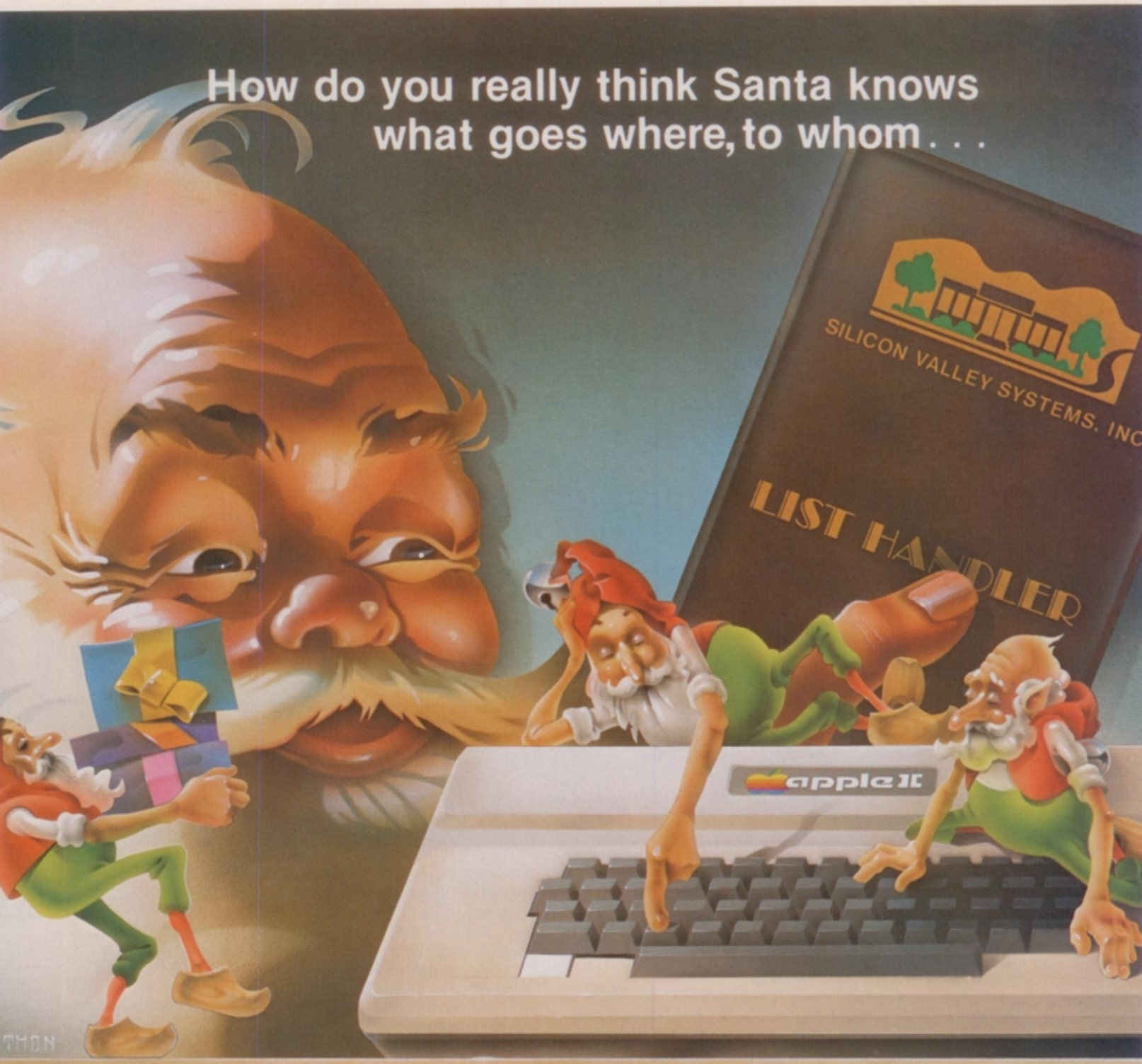
Simply the best . . .

Silicon Valley Systems

U.K. Distributor—Pete and Pam Computers

Head Office: New Hall Hey Road, Rossendale, Lancs. BB4 6JG Phone: (0706) 227011 Tele: 635740 Petpam G

London Office: 103-5 Blegborough Road, London, SW16 6DL Phones: 01-769 1022/3/4 & 01-677 2502



LIST HANDLER

The List Handler is, **without doubt**, much more than a mailmerge program.

Presto! List Handler turns your Apple® into a quick response file cabinet with room to grow storage space.

With List Handler you can hold up to 3000 records per drive so that 24000 can be kept on-line at the same time with multiple disk drives.

These records can be addresses if you choose, but here's where the versatility and flexibility come in.

Put what you like on those records!

- inventory
- product lists
- form letters
- short newsletters
- mailing lists
- personnel directories
- invoices
- labels

The list is endless.

The List Handler will run on one or more drives, read and write DIF format and has unlimited sort fields.

List Handler can stand alone or as an interface with your Word Handler (or most other word processors) for the most efficient word processing duo around.

The List Handler will surprise you, but the first surprise will be the price! At 89.95 the List Handler is the best and the only buy of its type around.

The enormity of Santa's job may have you skeptical of Santa's existence—but when you see the List Handler you might just believe in Santa again! See your Apple dealer for the List Handler.

Apple is a registered trademark of APPLE COMPUTER, INC.

Simply the best . . .

Silicon Valley Systems

U.K. Distributor—Pete and Pam Computers

Head Office: New Hall Hey Road, Rossendale, Lancs. BB4 6JG Phone: (0706) 227011 Tele: 635740 Petpam G

London Office: 103-5 Blegborough Road, London, SW16 6DL Phones: 01-769 1022/3/4 & 01-677 2502

HEALTH AND EXERCISE LIFESTYLE PROGRAMME

H.E.L.P.!



A PROGRAMME THAT'S FIT FOR EVERYBODY!

That's the Health and Exercise Lifestyle Programme for your *Apple II. H.E.L.P.! for short–the great new way for everyone to get fit and shapely.

Most people don't really know how fit or unfit they are. Many adopt a health regime totally unsuited to them.

Now you can apply computer science, accuracy and the product of over 2 years research into the relationship of health, exercise and stress to keep yourself in tune the whole year round.

All you have to do is feed some personal statistics into H.E.L.P.! which will then come up with an assessment of your present health and fitness status, advises how to modify your lifestyle to improve your work risk factor and goes on to offer a wide choice of activities for you to achieve your personal goal.

Don't worry about being ordered to take-up pole-vaulting, hang-gliding or three-day-eventing, there's no need. Your new exercise lifestyle will give you realistic choices and set you practical targets…and the result will be a much, much healthier you!

H.E.L.P.! costs just £60 (+VAT) and includes the programme disc, a H.E.L.P.! full 80-page Manual and a set of Skinfold Calipers, essential for measuring flab… before and after.

You can, of course, get H.E.L.P.! through your home or company Apple–and go ahead health clubs, golf clubs, squash clubs, tennis clubs etc., will certainly not want to be without it.

H.E.L.P.! is all about you, YOUR fitness and YOUR health–that's why you ought to know more about it.

So complete the coupon without delay and send it to Gate Microsystems.

Send now for further information and name of your nearest dealer.

GATE MICROSYSTEMS LTD

Post to Gate Microsystems Ltd, The Nethergate Centre, 35 Yeaman Shore, Dundee DD1 4BU.

*Apple II is a trademark of Apple Computer Inc., Cupertino, C.A. USA



H.E.L.P.! Please send me brochure with full details of the Health and Exercise Lifestlye Programme and the name of my nearest stockist.

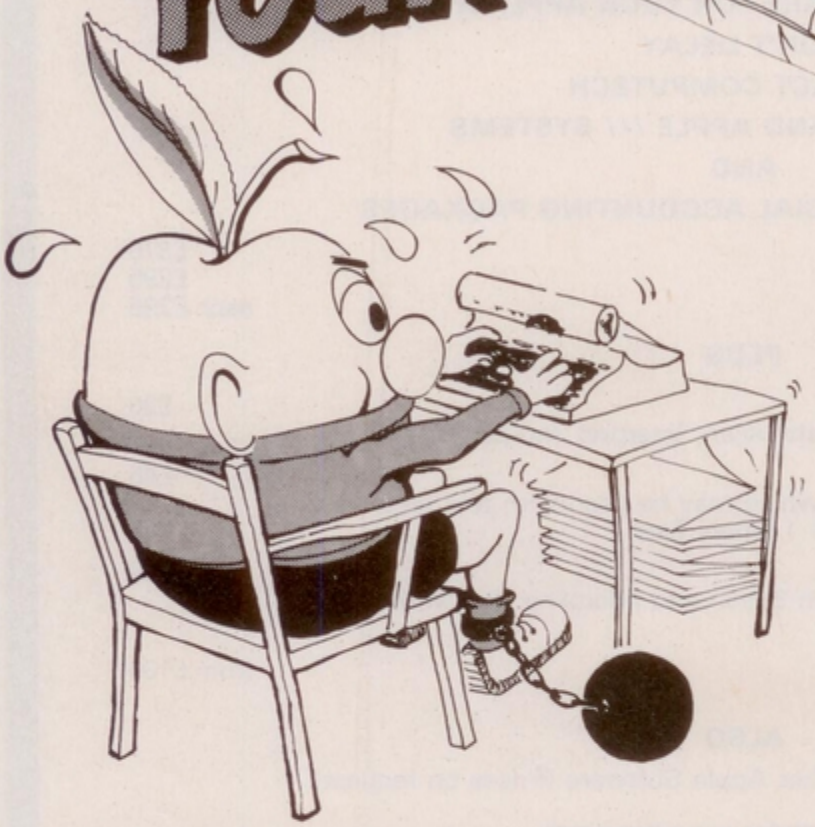
Name_____

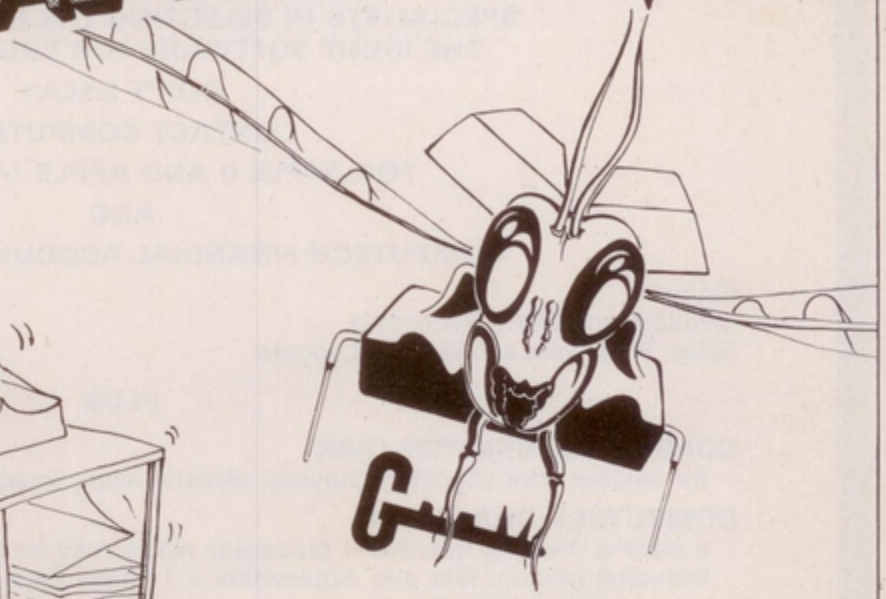
Club or Company (If applicable)

Address_____

UNSHACKLE YOUR APPLE

NOW AVAILABLE
IPB-64K VERSION
PRICE ON REQUEST





Intelligent Printer Buffer for the Apple II

DESCRIPTION

Printing documents, a major computer task and a key part of any business activity, wastes time by tying up your Apple until printing is complete.

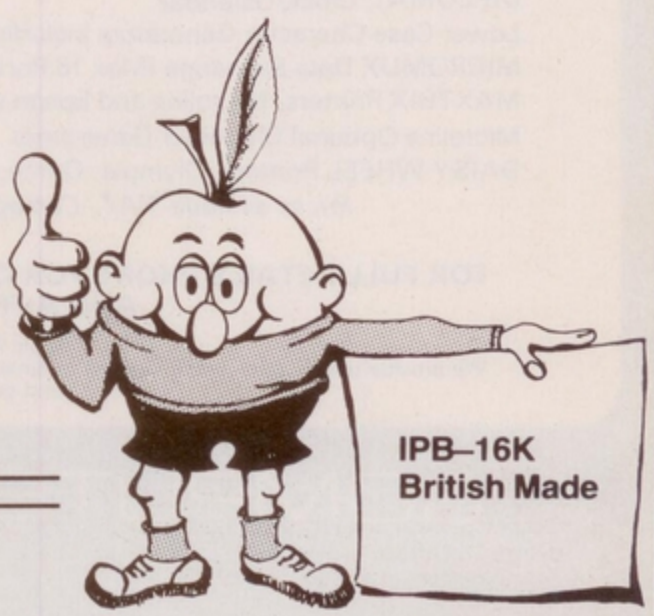
The IPB–16K is designed to receive data to be printed from the Apple at high speed, save it on the card then send it to the printer at the lower speed required by the printer.

The Apple is now available to continue other processing typically saving 1–20 minutes of otherwise wasted time.

FEATURES

- Graphics Dumping
- Compatible with Apple II & II PLUS.
- Two interfaces in one – same card drives serial (RS232) and parallel (Centronics) printers.
- Full 16,383 character capacity.
- Own on board low power microprocessor
- Serial baud rates 110–9600 Baud, XON/XOFF feature also.
- Software switching between serial and parallel outputs.
- Full paper formatting features make an ordinary printer look like a top of the range model.

***** R.R.P. £129.95*****
Ex.VAT



GRAM
BUSINESS SYSTEMS LTD.

48 Hedley St., Maidstone, Kent, ME14 5AD.
Tel: Medway (0634) 666496
or Maidstone 679595.

DEALER ENQUIRIES ARE INVITED

COMPUTECH for apple

Authorised dealer, service centre and system consultancy

SPECIALISTS IN SELECTING THE RIGHT SYSTEM AND THE RIGHT SOFTWARE FOR YOUR APPLICATION

DON'T DELAY

CONTACT COMPUTECH

FOR APPLE II AND APPLE /// SYSTEMS

AND

COMPUTECH FINANCIAL ACCOUNTING PACKAGES

Payroll	£375
Invoicing and Stock Recording	£295
Sales, Purchases and General Ledgers	each £295

PLUS

COMPUTECH UTILITIES DISK £20
for reliable error checking copying, diskette scan, interpret and patch, etc.

COMPUTECH CHAIN MAIL £45
a mailing merging document processor which may be used with text files, including random files and Applewriter 1.1 binary files.

COMPUTECH GRAPHICS DISK £30
for printing Apple pictures and graphs on Epson and Microline (free with printers purchased from Computech).

COMPUTECH TERMINAL UTILITIES from £130
Apple to Apple or Apple to Maintrame.

ALSO

Visicalc, Applewriter and other Apple Software (Prices on request)

COMPUTECH HARDWARE

DIPLOMAT Video Digitiser - store a frame from a video camera in a fiftieth of a second, process and print images.	£195
DIPLOMAT Parallel Interface	£80
DIPLOMAT High Speed Serial Communications Interface	£85
DIPLOMAT RAM 16 Memory Expansion	£95
DIPLOMAT Clock/Calendar	£80
Lower Case Character Generators including Applewriter enhancements	£50
MICROMUX Data Exchange (Max 16 Ports)	from £850
MAXTRIX Printers, Microline and Epson with graphics and up to 200 cps	from £230
Microline Optional Character Generators	£15
DAISY WHEEL Printers, Olympia, Qume, Ricoh, etc.	from under £1000

Prices exclude VAT, Carriage and Packing. Trade enquiries welcome.

FOR FULL DETAILS PHONE FOR COMPUTECH'S PRODUCTS AND PRICES PACK AND A FREE DEMONSTRATION

Apple National Accounts Dealer
We provide quality service and support to small businesses and to major national and international organizations and government departments.

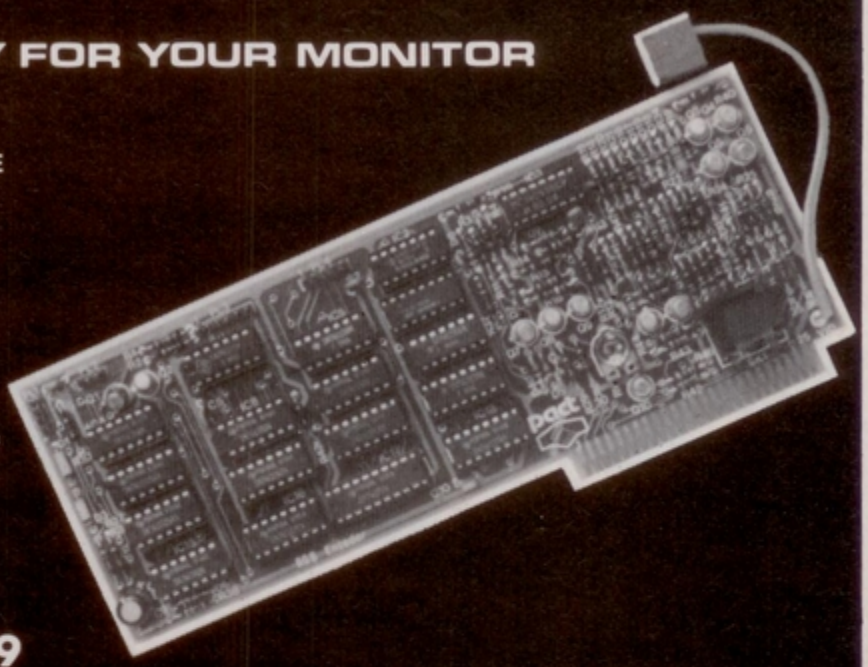
COMPUTECH SYSTEMS

168, Finchley Road, London NW3 6HP. Tel: 01-794 0202

AGENTS THROUGHOUT THE UK AND OVERSEAS

pact PLUG-IN VERSATILITY FOR APPLE USERS

VERSATILITY FOR YOUR MONITOR



RGB COLOUR INTERFACE

THE HIGHEST QUALITY COLOUR AVAILABLE

* Fully saturated Apple colour set
* Alternative hi-intensity colour set
* Software selectable full flood background colour
* Software selectable text (foreground) colour
* Duochrome mode * Anomaly filter
* 80 column compatible

£120

MULTI-COLOUR TEXT ADAPTOR

* A hardware add-on
* Allows individual words to be produced in any of 16 different colours

£50

80 COLUMN DISPLAY INTERFACE

* Normal and inverse character sets standard
* Compatible with Pact RGB colour card
* Compatible with wide range of software
* Supports Basic • Pascal • C/PM etc.

£149

VERSATILITY FOR YOUR PRINTER

SERIAL/COMMUNICATIONS INTERFACE

* The one card for all RS232 applications
* On board serial and communications protocol
* Options for specialised firmware
* Full handshaking features
* Generates all standard Baud rates

£99

SERIAL PRINTER DRIVER

* Low cost serial card for dedicated serial printer use
* Baud rates from 75-19200

£68

PARA-GRAPH

The card to choose for parallel dot matrix printers
Features many word processing type text commands and hi-res graphics dump commands

£75

PARA-GRAPH +

The one card for all parallel printers

Load the on-board alterable ROM to suit your particular printer from the disc supplied. Under normal usage the firmware will remain indefinitely. However, should you wish to use your Para-graph + with another printer, simply reload with the appropriate firmware.

£95



CLIP-ON FAN MODULE £50

(THE PREVENTATIVE MEDICINE)

Avoid costly and time consuming system malfunction due to overheating

Apple and fan powered up simultaneously by illuminated switch on front of module

* Silent running
* Robust case
* Simple clip-on module

pact

* Installed in seconds
* Integral mains lead
* Impedence protected

Further details from: Pact Electronics Ltd., 224 Edgware Road, London W2 1DN.

Telephone: 01-402 8842/6103
Telex: 22861

American Express Access

Professional
THE / PROJECT MANAGERS



MICRO PLANNER

Originally created for the Apple][, MICRO PLANNER has rapidly gained an international reputation among Project Managers and Planners for its mix of professionalism and interactive friendliness. NOW the specially prepared version for the Apple /// realises the full power of this superb computer. It adds greatly increased capacity and many additional features. Only a demonstration can reveal its full potential.
MICRO PLANNER uses the proven technique of Network Analysis (or P.E.R.T.) to plan and control any project which requires accurate co-ordination of interdependent operations. Every organisation, large or small, can benefit from Micro Planner's powerful features which include genuine Resource Analysis. It is being used for:

- **Construction projects.**
- **Research and development.**
- **Design projects.**
- **Production planning for heavy engineering.**
- **Organisation of exhibitions or events.**
- **Product launches and advertising campaigns.**
- **Installation of plant and equipment.**
- **Commissioning of plant or buildings.**
- **Plant breakdowns or planned maintenance.**
- **Workload orgnaisation.**

. . . and many more applications.

Why not contact us today? We will send you full information and specifications by return.

MICRO PLANNING SERVICES

8 HOWECROFT GARDENS
BRISTOL BS9 1HN.
Telephone: 0272 684530

To: **Micro Planning Services**
Please send me detailed information about MICRO PLANNER.

Name:

Address:

.....

.....

.....

.....

Tel. No:

Welcome to the ICE Age

I.C.E.



5¼in. Winchester Sub Systems with a tape streamer back up

From 3 to 42 Megabyte configurations

Compatible with

Apple II • Apple III • Superbrain • Sirius/Victor • I.B.M.P.C. • S100 • Z80 based Systems

Tapestreamer backup now available for Profile. Apple III hard disc.

Retail from £1350

For further information or a demonstration contact:– ICE 16/18 Littleton Road, Ashford, Middlesex TW15 1UQ. Telephone Ashford (07842) 47271/47171 Telex 8952042 (DP CUST G)

New from X-DATA



t-stor Complete Winchester Subsystem

- fully self-contained
- single/dual disks
- up to 19MBytes
- Apple II interface standard
- DOS 3.3 or PASCAL operating software
- interface options available

X-Data's t-stor Winchester disk subsystem is designed for use with most popular micros. This free-standing, fully self-contained unit, is fitted as standard with an Apple II host interface, but others are available to order.

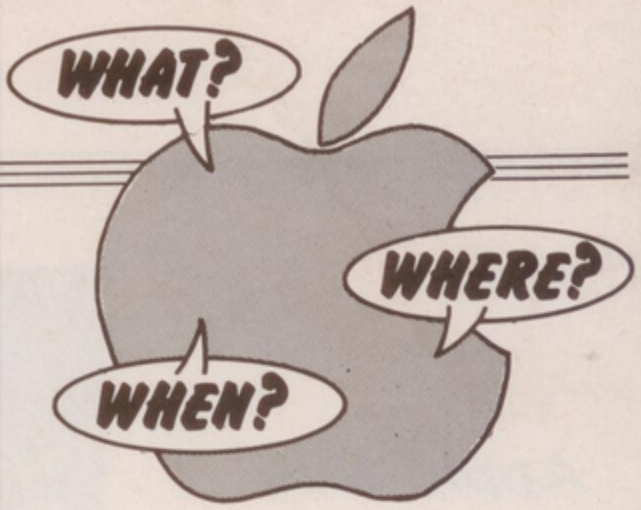
Using IMI Winchester drives featuring special shock-absorbent mountings and extra-hard-plated media, the t-stor is supplied with disk operating software for DOS 3.3 or PASCAL. CP/M will be available shortly. In the dual-drive version, each drive can be independently accessed – the second drive can be used for back-up by the user's own program.

The t-stor is supplied fully factory tested, with all necessary cables and connectors.

For more information telephone Slough (0753) 72331

X-Data Limited
750-751 Deal Avenue
Slough Trading Estate
Slough, Berks. SL1 4SH.

WHAT'S NEWS...



By David Creasey

High speed Apple knocks spots off the competition

– and that includes the 16 bit brigade

THE humble Apple II can be turned into the fastest personal computer in the world – even faster than any of the growing crop of 16 bit micros. And all because of a remarkable piece of Anglo-American co-operation.

It's done with a fast processor board called the Accelerator II. Insert it into one of the Apple II slots and automatically, without any further modification to software, it will speed up programs by an incredible 350 per cent.

Three companies have been involved in the development of the board, two of them in the USA. The third is one of Britain's leading Apple dealers, Pete and Pam Computers, who operate from the little Lancashire town of Rossendale.

Its founder, quiet-spoken Pete Fisher, a man not given to making the kind of wildly extravagant claims common in the micro business, asked to describe the new board, allowed himself an uncharacteristic burst of enthusiasm: "It's quite unique," he said.

"We've compared it against benchmarks for all the other micros and it comes out faster than them all. Far faster than the IBM, Sirius and the others.

"Think what you can do if you can get your Apple to run three and a half times faster – especially if you run programs which require you to sit around waiting for calculations to be completed. It makes an enormous difference to programming time.

"It immediately converts the Apple II from being the slow plodder it might appear to be compared to many of the newcomers, into the fastest of them all."

The board, which will retail at £299, could have a significant effect on the future development of the business micro market. It could give a new lease of life to the Apple II, which Apple themselves consider so old-fashioned that they have now stopped producing it altogether.

Many existing Apple II users currently thinking of upgrading to a more modern machine could well be having second thoughts.

As Pete Fisher put it: "Rather than going the whole hog and buying a new micro – and perhaps having to give up their existing software – most people would prefer something that gives their present machine an immediate boost. This could be just what they have been looking for."

Machine	BM1	BM2	BM3	BM4	BM5	BM6	BM7	BM8	Average
Apple II Plus with Accelerator II	0.3	2.4	4.5	5.0	5.5	8.2	12.9	2.98	8.6
Olivetti M20	1.3	4.0	8.1	8.5	9.6	17.4	26.7	1.6	11.5
IBM Personal Computer	1.5	5.2	12.1	12.6	13.6	23.5	37.4	3.5	17.6
Osborne 01	1.4	4.4	11.7	11.6	12.3	21.9	34.9	6.1	19.9
Intertec Superbrain	1.6	5.2	14.0	13.9	14.8	26.3	43.2	5.6	21.9
Apple III	1.7	7.2	13.5	14.5	16.0	27.0	42.5	7.5	24.7
ACT Sirius 1	2.0	7.4	17.0	17.5	19.8	35.4	55.9	4.3	24.8
Xerox 820	1.7	5.5	15.5	15.1	16.2	28.9	46.1	8.0	26.1
Apple II	1.3	8.5	16.0	17.8	19.1	28.6	44.8	10.7	30.4
Commodore CBM 8032	1.7	10.0	18.4	20.3	21.9	32.4	51.0	11.9	34.3

When PCW published a roundup of all their benchmark timings last November the Olivetti M20 was the clear winner at 8.6, compared with the Apple III at 24.7 and the Apple II at 30.4. Using the identical test programs, the Apple fitted with Accelerator II averages a timing of 8.58 – which is 25 per cent faster than the Olivetti.

Linking up whole family

THE American subsidiary of Symbiotics International has already got its Symbfile hard disc unit working with Apple's Lisa.

Sales director Eric Rixon says there are still a lot of drivers to write "but we've had it working in a rudimentary fashion.

"This means that as soon as Lisa is available in the UK users will be able to link up a minimum of 84mbytes of hard disc storage," he said.

The company has also developed a network that will link Lisas, IIes and Apple IIIs. "We can do now what Apple has only promised to do in a year's time," said Rixon.

Apple announced in January that its local area network, AppleNet, will be available by the end of this year.

Initially only systems of the same type will be able to transfer files to each other (Lisa to Lisa, Apple III to III) but eventually Apple will develop enhancements to enable the transfer of information between any of their machines.

"Network communication is an integral part of the personal computer," said Mike Markkula, president and chief executive of Apple Computer.

Applenet will use the Xerox network systems protocols in addition to Apple-developed protocols. An Apple spokesman says that the company will encourage the development of network-related products by making public all network interfaces and protocols. All Apple software will be developed to work on both Applenet and the Xerox/Intel/DEC Ethernet standard network.

The network electronics will be located on an interface card which plugs into the Apple. Each 600 metres of network cable will be able to support up to 32 cluster boxes – a total of 128 systems.

Apple aids shot PC

"COMPUTER technology can work where doctors have failed" is the philosophy of an American professor who is striving to help a British police hero walk again.

Police Constable Philip Olds was shot in the spine by a robber just over two years ago. His legs were paralysed and he has been confined to a wheelchair since then.

Now Dr Jerrold Petrofsky of Wright State University in Dayton, Ohio, hopes to have Philip up and about again by the end of the year. He is planning to program him, literally, to walk again.

Dr Petrofsky has developed a program running on an Apple II which passes electrical impulses into the leg to make crippled muscles work again.

Eventually he hopes to perfect the system so that tiny wires can be implanted under a person's skin next to the muscles, and the amount of electricity needed to kick them into life will be so small that an ordinary watch battery would do the job.

Olds flew to the United States for the first crucial test to see whether his leg muscles still worked. They did, with the Apple controlling the order and duration of the electrical stimulation.

After two weeks of simple exercises he progressed to an exercise bike – the Zapmobile. It is an adult tricycle with a shopping pannier on the back to carry the battery powered computer. This sends electrical signals to the legs, enabling the paralysed rider to pedal.

Dr Petrofsky eventually hopes to wire certain chest muscles to the computer program so the the brain can control the legs via the chest muscles.

The ultimate aim is to reduce the circuitry to the size of a microchip and to implant this, with a power source, inside the body.

Looking at Lisa

CREDIT where it's due. Electrical and Radio Trading has made an amazing discovery about Lisa, one that will astound Apple itself.

"Also released is the much-heralded 16 bit Apple Lisa, which has turned out to be an extended version of the Apple II," said ERT writer Alan Simpson.

Perhaps when Mr Simpson actually sees a Lisa in operation he will want to revise his opinion. He also got things mixed up when he suggested that Apple Computers "lost little time in responding" to the UK launch of the IBM Personal Computer, with the release of the IIe.

In fact the IIe was launched at the same time as the PC – and one suspects that the two parent companies were challenging the market place, rather than responding to each other.



First steps start with sitting down. Philip Olds sits wired to the apparatus in front of Dr Jerrold Petrofsky. Philip's fiancee, Vanessa, is in the background.

Soaring sales

THE continuing Apple success story doesn't stop short at Apple itself. Silicon Express, the franchise distributor in mainland UK for Microvitec colour monitors, says sales of the monitors are going through the roof and in the past four months the company has passed its sales target for a whole year.

Paul Madden of Silicon Express is particularly proud of the fact that the monitors were used at the launch of the IBM personal computer at the Which Computer? Show and Apple UK bought 12 for use on its exhibition stands.

"The Staffordshire Education Authority has ordered more than 400 colour monitors from us in the past two months, and the Greater London Council has ordered Microvitec monitors for more than 100 of its colleges of further education," he adds.

A significant new trend, says Madden, is the increasing percentage of hi-res colour monitors sold for use on the Apple III in training applications within industry and education.

The interface card for the monitors is also completely compatible with the new IIe and is selling well into that market.

Required reading . . .

WE always suspected it, but now it's official. *Windfall* is one of the best-read publications among both Apple dealers and Apple users.

This was one of the facts which emerged from a survey carried out by the marketing department of major distri-

Apple '83

***WINDFALL'S* annual get-together for the Apple world – Apple '83 – takes place at the Fulcrum Centre at Slough in Berkshire on June 3-5.**

The show will be bigger and better than last year, reflecting the growing number of people who use or are interested in Apples.

More than 100 companies marketing software, hardware, stationery and books for the Apple will be taking stands – double the number of exhibitors at Apple '82.

Among the first to book space were Pete and Pam, SBD, Blythe Computers, Hal Computers, Symbiotics International, U-Microcomputers, Jarman Systems, Haigh and Hochland, TABS, Robocom, Silicon Express and the Computer Bookshop.

butors Pete and Pam Computers.

They investigated the reading habits of a random selection of Apple dealers and end users, and *Windfall* and its sister publication, *Computer Dealer,* fared extremely well.

More than a thousand dealers and end users with an interest in Apples were asked to say which of 42 computer-related publications they received, whether they came free, by postal subscription or from a newsagent – and whether they actually read them.

Replies were received from 305 dealers and 222 users. Sixty eight per cent of those polled receive *Windfall* and 58.6 per cent read it.

Breaking the figures down further, 244 of the dealers said they received the magazine (with 218 reading it) and 91 of the 92 end users receiving it actually read it. Where did we go wrong with that one unhappy reader?

This put *Windfall* second in the readership success table behind *Practical Computing,* which is received by 66.4 per cent of those polled, and read by 61.3 per cent.

The survey noted that the computer and allied trades press "could well experience a death rate as fast as its rapid growth rate – and the smaller fish might not survive." However it concluded that some of the fairly new publications have "served their short apprenticeships and have become accepted as part of our staple diet.

"*Windfall* and *Computer Dealer,* from Database Publications in Stockport, are good examples of this, being very well read according to our survey."

The survey was started in November last year, and Pete and Pam say that it is a fairly accurate representation of the overall Apple computer dealer and user network in the UK.

Two good Fellows

APPLE Computer presented its highest award for technical achievement to two of the principal engineers involved in the development of Lisa.

Bill Atkinson and Richard Page, both consulting engineers in Apple's Personal Office Systems Division, were named "Apple Fellows." The year-long fellowships allow them to define and conduct independent research projects which will advance Apple's technological standing.

Atkinson completed most of the early work on the Lisa "user interface" – the internal software structure which determines how the user operates the computer. He designed the graphics routines upon which Lisa's entire software architecture is based, and invented the concept of the "pull-down menu."

Page spearheaded work which resulted in the selection of the MC68000 as Lisa's primary microprocessor. He created the prototype software development tools which were used by more than 60 engineers in writing Lisa's applications programs.

During the past two years he has refined these tools for use by independent software companies which are developing additional applications for Lisa.

"Although Lisa was a team effort, one individual really is the 'father of Lisa'," said Steve Jobs, Apple's chairman. "Bill Atkinson's passion and vision of what the product could be kept us from making many compromises. His incredible dedication and long hours translated the vision into shipable software for Lisa.

"Unlike Bill Atkinson's work, the results of which are highly visible to Lisa users, Rich Page's work is seen and appreciated mostly by the people who write Lisa software," Jobs said. "He laid the foundation on which the rest of the software team stood, by creating the tools needed to complete the product."

The micro millions

THE quest for computer literacy is, and will continue to be, the impetus behind the explosion in home computer sales, according to a report from International Resource Development of Norwalk, in the United States.

While many are buying home computers to play video games or to provide their children with the newest learning tool the study estimates that from fifty to eighty million people will buy micros in this decade for the sole purpose of learning how to use them.

The report notes that the sale of millions of micros for computer literacy purposes does not guarantee that the micro will become an essential household appliance.

The question is still open whether, once people have familiarised themselves with the new technology, applications can be found to make the use of a computer an everyday occurrence.

IRD have put forward a pessimistic scenario, dubbed the "Computer in every closet" syndrome. Here consumers decide that there is little a home computer can do that can't be done more efficiently and inexpensively through traditional methods, and stuff them away in a closet to gather dust.

While this is highly unlikely to occur, it does serve as a reminder that the inevitability of the microcomputer-in-the-home revolution should not quite yet be taken for granted.

What the home microcomputer industry needs is a "Visicalc-of-the-Home", a software package that consumers simply can't refuse, says the report.

has doubled in size

An Apple users' convention run in conjunction with the exhibition is intended to complete the three-day showpiece. Visitors will be able to investigate the wealth of commercial software and equipment available as well as take the opportunity of learning about what other people are doing with their Apples.

The convention involves several detailed presentations each day. Many of the topics have a business slant – reflecting the fact that more than 80 per cent of Apples sold in the UK go into businesses.

However there will also be plenty of interest to all Apple users. We will be looking at case studies in both business and education as well as investigating financial spreadsheets from both a beginners and an advanced point of view.

Hardware add-ons and software utilities will be discussed and the convention will also look at important existing applications areas, such as word processing and databases as well as examining the networking of Apples and its implications for the future electronic office.

***Windfall* will also be manning a special enquiry desk to help visitors find their way around the show as well as to handle queries and comments.**

Apple users will find plenty to talk about, to look at and to listen to at Apple '83. We look forward to seeing you there.

GROW UP! *with* microplan

an incentive to up-grade

MICROPLAN, the Micro Computer Business Centre, offer a unique proposition to companies with a serious business micro computer systems up-grade requirement.

The first fifty customers during April who have outgrown their current micro computer systems are offered generous one-for-one trade in terms

Up to £370 may be allowed for a 48K Apple with various permutations of ancillary equipment - even greater savings are achieved on multiple trade-ins.

MICROPLAN believe in total service and guide their customers towards the most appropriate system for their present and future needs.

Contact MICROPLAN today for full information on how they can help your system GROW UP!



Total Product. Total Support.

microplan (strand) limited

Micro Computer Solutions for Business

1 Durham House Street, Strand, London WC2N 6HG. Telephone: 01 930 0417

THINK TANK

...the *Windfall* platform for anyone wishing to agree with, improve, disprove or generally discuss specific articles in Windfall. Write to: Think Tank, Windfall, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY.

Labelling hi-res graphs

I FOUND the excellent series of articles by R.J. Beynon *(Windfall issues January to March 1982)* most interesting and looked forward to his promised follow-up concerning labelling the graphs, writes **Alan Hourd.** To date, however, there has been no sequel, and I have had to devise my own technique for a particular application. The following notes may help others in the same situation.

I tried two approaches, both of which are effective. The snags associated with them are related to the manner in which the Apple II handles graphics in general. There is no simple solution so far as I can see.

The first method involves using the "High-resolution Character Generator", and its "Character Table", as published in Apple Software Bank, Contributed Programs, Volumes 3-5. These used to be available, free of charge, from dealers, but they might be more difficult to acquire these days.

Assuming they are to hand, it is easy to load the generator and its table at $800 and $1000 respectively with an Applesoft program loaded above HGR Page 1. A demo program with the generator shows you how to print characters on a graph, both upper and lower case. A couple of POKEs and one can treat the hi-res page as though it were a text page, using HTAB and VTAB commands as usual. Descriptive labels, or headings, present no problems at all. Labelling X and Y axes with subdivision values is a little more complicated since the HTAB and VTAB values have to be calculated for each point. A routine like:

```
100 FOR L = 0 TO 10
110 HT = (((XU-XL)/10) *L + XL+6)/7
120 HTAB HT : PRINT L;: NEXT
```

will print in the X axis values at the right point, assuming you have VTABed to the appropriate line initially.

The simplicity of this method is also its main drawback – the characters can only be printed to the normal 24 by 40 positions available as on the text screen. This means that the axes of the graph may have to be adjusted in length to get the values lined up with the correct divisions, or one accepts the fact that some values will fall somewhat off target.

The Applesoft Toolkit contains a similar type of hi-res character generator and it would, probably, work as well as the one described above.

The second method involves using a shape table containing all the characters you are likely to need, and using this to DRAW, or XDRAW, characters at any point you like on the screen. Thus the label can be started at almost any of the 190 by 280 points, and the characters can be rotated and/or scaled as required.

Again, the shape table may be loaded in the $800 to $1FFF space below Page 1. Then POKE 232,0 : POKE 233,8 will tell Applesoft where to find it. Simple labels could be drawn, one character at a time, to a precise position on the screen. Longer labels and axis values are better handled through a subroutine such as:

```
100 FOR L = 1 TO LEN(LABEL$)
110 DRAW ASC ( MID$ ( LABEL$, L, 1))
    - CONSTANT AT X + 7*L, Y
120 NEXT L
```

where LABEL$ is the label or value string to be printed, and CONSTANT corrects the Ascii value to the position of the corresponding character in the shape table.

As the X value is increased in multiples of 7 the label would print horizontally across the screen, at a vertical position defined by Y. Vertical (Y axis) labels involve double calculations, to get correct alignment, but it is easy to get the values neatly aligned with the divisions on both axes.

Some extra code is needed to trap characters that aren't in the shape table, unless the table contains a full set.

You will have noticed by now that I have glossed over the main snag associated with this second method – creating the shape table. I doubt anybody would enjoy working out all the necessary code by hand, not when at least 37 shapes are involved.

→

&...and screen editing

THERE is a far simpler way of making the ampersand hook available whenever you want than by messing around with Basic programs or Exec files. You just make it part of the DOS and it will be present on all discs, writes **Derek Turner.**

There are a few small unused areas in 3.3 DOS, and the following short routine may be placed at BA69 without affecting anything:

```
BA69-   20 58 FC   JSR $FC58
BA6C-   A9 21      LDA #$21
BA6E-   85 21      STA $21
BA70-   60         RTS
```

The next thing to do is to set the image of the page 3 ampersand hook in 9E76 to point to BA69. The result should look like this:-

```
9E76- 4C 69 BA
```

All you do now is take a fresh disc and INIT it and then reboot. The & POKE 33,33 will now work.

Unfortunately, I have no simple answer to this. There are programs around that will make the job easier by creating the shape on the screen for you, but a lot of concentration is still needed.

The job has been done before, of course, and you may be fortunate enough to be able to get a copy. Otherwise you can buy a large pad of graph paper and start designing. I'm not aware of a suitable table that is available off the shelf, but that doesn't mean it doesn't exist.

While on the subject, I would comment on an error in Mr Beynon's original listing for the program start adjustment. This appears to have been repeated in a letter from Mr S. Broadbent in the March 1982 issue. The POKEs in both will move the program start to the bottom of Page Zero, and the crash on trying to run a program there may well be audible! The correct version to start a program above HGR Page 1 is:

POKE 103, 1 : POKE 104, 64

This sets the address to $4001, which is what is needed to jump the first hi-res page. I agree with Mr Broadbent that it is much simpler to run an initialising program as he described rather than to EXEC a text file.

A numerical keypad for the Apple

WHILE reading recent reviews of the portable Epson microcomputer I was struck by the simplicity of the idea of using the usual U,I,O,J,K,L,M,<, > keys as a numerical keypad, writes **Max Parrott.**

Since I already had a utility used to allow only numerical entry I decided to convert it to form such a keypad. This is it as written for a 48k Apple, together with a small Basic program to illustrate its use. A CALL 779 switches it in and a CALL 768 switches it out.

While in use the usual number keys are operative and the block of keys bounded by 7,M,?,9 form the keypad (it is worth sticking small identifiers on the newly-formatted keys). As an extra the + key does not have to be shifted.

Even if not used as a keypad it is often worth using merely to allow only numerical entry when many numbers have to be entered from the keyboard.

```
10 D$ =  CHR$ (4)
20  PRINT D$"BLOAD KEYPAD"
30  CALL 779
40  FOR I = 1 TO 10
50  INPUT A(I)
60  NEXT
70  CALL 768
80  FOR I = 1 TO 10: PRINT A(I),: NEXT
```

Basic program illustrating Keypad in action.

```
*300.368

0300- A9 1B A0 FD 85 38 84 39
0308- 4C EA 03 A9 19 A0 03 85
0310- 38 84 39 4C EA 03 20 3A
0318- FF 20 1B FD C9 B0 90 04
0320- C9 BA 90 33 C9 AB B0 11
0328- C9 8D F0 2B C9 98 F0 27
0330- C9 88 F0 23 C9 95 D0 DE
0338- 60 C9 AF 90 1A C9 BB D0
0340- 03 29 EF 60 C9 C9 90 CE
0348- D0 03 A9 B5 60 C9 D0 90
0350- 07 C9 D5 D0 C1 A9 B4 60
0358- C9 CD D0 03 A9 B0 60 C9
0360- CE D0 02 A9 B1 38 E9 19
0368- 60
```

A hexadecimal dump of Keypad.

```
0800                    1  **********
0800                    2  * KEYPAD *
0800                    3  **********
0038                    4  KSWL      EPZ $38
0039                    5  KSWH      EPZ $39
03EA                    6  DOSET     EQU $3EA
FF3A                    7  BELL      EQU $FF3A
FD1B                    8  KEYIN     EQU $FD1B
0300                    9             ORG $300
0300                   10             OBJ $800
0300                   11  NOTUSE:
0300 A9 1B             12             LDA #KEYIN
0302 A0 FD             13             LDY /KEYIN
0304 85 38             14             STA KSWL
0306 84 39             15             STY KSWH
0308 4C EA 03          16             JMP DOSET
030B                   17  USE:
030B A9 19             18             LDA #GO
030D A0 03             19             LDY /GO
030F 85 38             20             STA KSWL
0311 84 39             21             STY KSWH
0313 4C EA 03          22             JMP DOSET
0316 20 3A FF          23  NO         JSR BELL
0319                   24  GO:
0319 20 1B FD          25             JSR KEYIN          ;GET KEYBOARD CHAR
031C C9 B0             26             CMP #$B0           ;'0'
031E 90 04             27             BCC CHECK          ;IF LESS CHECK IT
0320 C9 BA             28             CMP #$BA           ;ONE MORE THAN '9'
0322 90 33             29             BCC OKAY           ;RETURN WITH IT
0324                   30  CHECK:
0324 C9 AB             31             CMP #$AB           ;'+'
0326 B0 11             32             BCS CHECK1         ;IF GREATER OR EQUAL
0328 C9 8D             33             CMP #$8D           ;CR OR CNTRL-M
032A F0 2B             34             BEQ OKAY
032C C9 98             35             CMP #$98           ;CNTRL-X
032E F0 27             36             BEQ OKAY
0330 C9 88             37             CMP #$88           ;CNTRL-H
0332 F0 23             38             BEQ OKAY
0334 C9 95             39             CMP #$95           ;CNTRL-U
0336 D0 DE             40             BNE NO
0338 60                41             RTS
0339                   42  CHECK1:
0339 C9 AF             43             CMP #$AF           ;1 ABOVE $AE (.)
033B 90 1A             44             BCC OKAY           ;PASS , . - +
033D C9 BB             45             CMP #$BB
033F D0 03             46             BNE CHECK2
0341 29 EF             47             AND #$EF           ;FORCE $BB TO $AB
0343 60                48             RTS
0344                   49  CHECK2:
0344 C9 C9             50             CMP #$C9           ;'I'
0346 90 CE             51             BCC NO             ;NO GOOD
0348 D0 03             52             BNE CHECK3
034A A9 B5             53             LDA #$B5           ;'5'
034C 60                54             RTS
034D                   55  CHECK3:
034D C9 D0             56             CMP #$D0
034F 90 07             57             BCC CHECK4
0351 C9 D5             58             CMP #$D5           ;'U'
0353 D0 C1             59             BNE NO             ;NO GOOD
0355 A9 B4             60             LDA #$B4           ;'4'
0357 60                61  OKAY       RTS
0358                   62  CHECK4:
0358 C9 CD             63             CMP #$CD           ;'M'
035A D0 03             64             BNE CHECK5
035C A9 B0             65             LDA #$B0           ;'0'
035E 60                66             RTS
035F                   67  CHECK5:
035F C9 CE             68             CMP #$CE           ;'N'
0361 D0 02             69             BNE CHECK6
0363 A9 B1             70             LDA #$B1           ;WILL BECOME $98
0365                   71  CHECK6:
0365 38                72             SEC
0366 E9 19             73             SBC #$19           ;FORCE O,J,K,L -> $B6,B1,B2,B3
0368 60                74             RTS
0369                   75             END
```

INTER-OFFICE MEMORANDUM

John
Saw this in Windfall would like demo A.S.A.P
please action M.B.

symb/net. *(n) (see fig 1)* **1.** speedy long range, local area network system, capable of ranges to 9km. utilises fibre optic cable and semi conductor laser to transmit data; **symbnet** enables user to link various microcomputers supported by **symbfile** *(see below)* **2.** compatible with DOS,PASCAL,CP/M; transfer rate 50 kHZ, transmission power 800 micro W cable, fire retardant P.V.C. grade 32, signal insensitive to electrical noise, ∴ cannot be corrupted; system nucleus **symbfile** *(see below).*

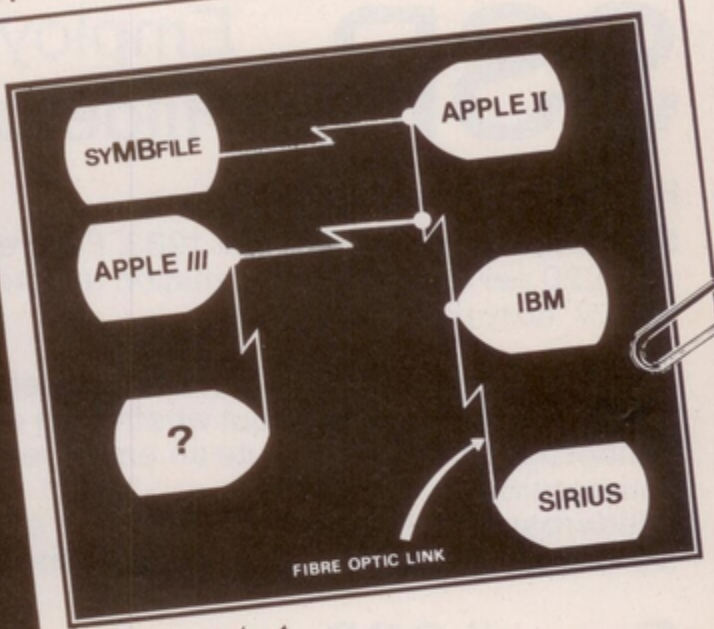


fig 1 **symb/net.**

symb/file *(n) (see fig II)* **1.** high capacity, high quality, 5¼" Winchester sub-system, compatible with most microcomputers including APPLE II, III, IBM PC, and SIRIUS. Other features include **2.** a cold booting facility **3.** one year's full warranty. Also available on **symbfile** top quality software including database, word processing and accounting packages. **4.** capacities range from 3-84 megabytes; average speed of access 90ms, 32 sectors per track; rotational speed 3600 (rpm) **5.** used at the centre of network system — **symbnet** (*see above*).

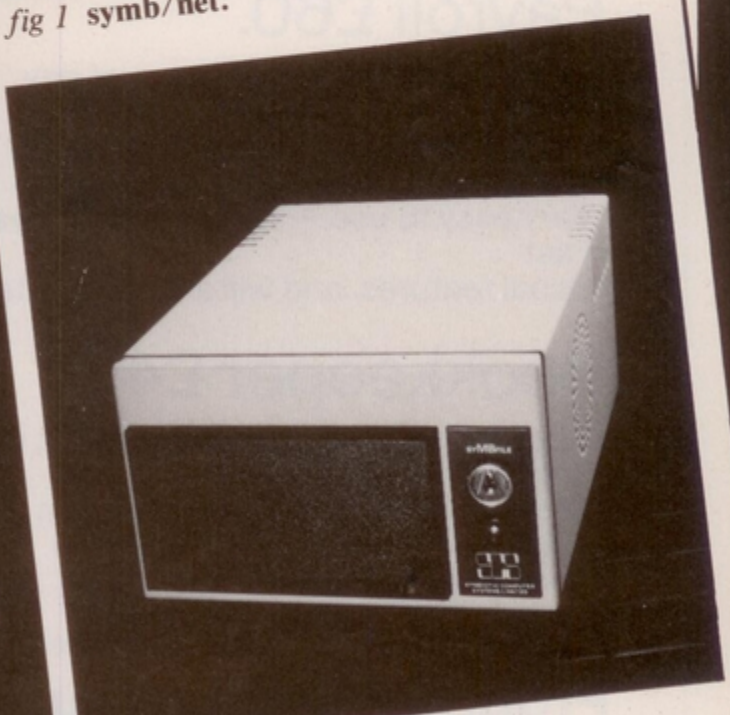


fig II **symb/file**

Symbiotic Computer Systems Ltd.

32 Elmwood Road, Croydon, CR9 2TX. Telephone: 01-683 1137 (PBX) Telex: 893815

APPLE IBM PC SIRIUS CP/M PASCAL DOS

BRITISH TECHNOLOGY AT ITS BEST

PROFESSIONAL SOFTWARE BY HILDERBAY

AVAILABLE NOW on apple II and IIe

SSP

Statutory Sick Pay

Employers! SSP is a problem
Hilderbay SSP is a solution

Hilderbay SSP £70

SSP is applicable from 6 April 1983. Failure to keep records can lead to a fine of £200 plus £20 per day. All the information required to operate SSP is in DHSS publication NI.227: sixty pages of red tape.

*__Hilderbay SSP__ will tell you what to do before starting to operate SSP.
*__Hilderbay SSP__ will work out whether an employee is eligible for SSP.
*__Hilderbay SSP__ will compute an employee's SSP and all necessary information for your records.
*__Hilderbay SSP__ is compatible with your existing manual or computer payroll system (so long as your system allows you to enter the SSP just calculated).

Payroll £60.

*All tax codes, all N.I., all rates of pay
*Monthly, weekly, hourly
*Up to 50 employees at a time
*Meets inland revenue specification
*Very easy to use — no specialists needed!
*Fast
*Usual features, and will also compute gross pay backwards from net!

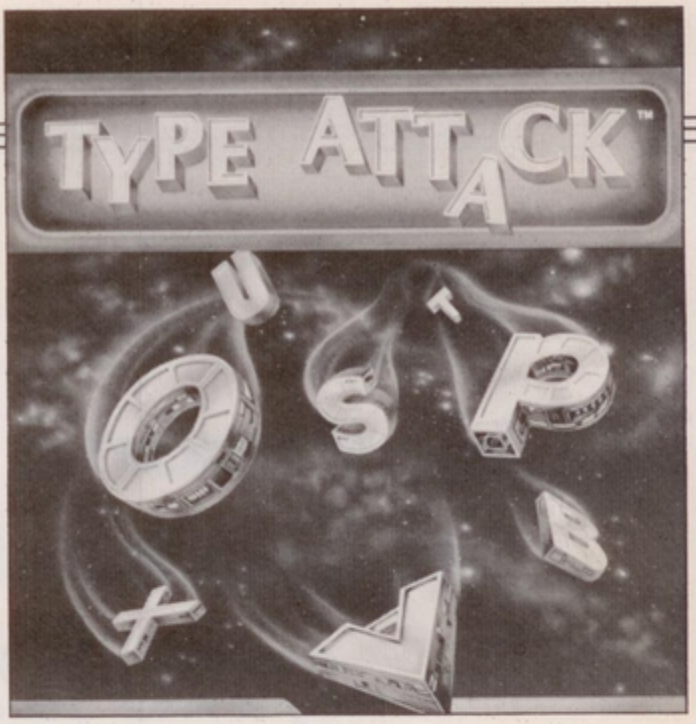
Bookkeeper £49.

*Keeps cash book, petty cash book, etc.
*You choose headings
*Prints date, details, total, VAT: then prints amount under correct heading
*Totals printed and carried forward
*Sorts entries in date order

Details on request. Add VAT to prices. Everything post free.

Programs can be supplied on a 21 day money back trial
Apple II Demonstration Disc (Payroll and Bookkeeper) £12

HILDERBAY LTD Professional Software since 1979
8/10 Parkway, Regents Park, London NW1 7AA Tel: 01-485 1059 Telex 22870
We have 20 years' experience in computing



After Type Attack a secretarial course will never be the same again

HAVE you ever wished you could type by using more than the proverbial two fingers?

It is often claimed that learning to type is an incidental bonus from using computers, but in my experience most people learn only keyboard layout. If you fall into this category, then Type Attack from Sirius Software could improve your typing while letting you play games at the same time.

The game is basically a two-level arcade game in which advancing waves of attackers must be repelled. However, the twist is that in Type Attack the aliens are letters (on the first level) and words (on the second level) which are zapped by typing them before they reach you.

Simple, eh? Don't you believe it!

The game is organised into lessons, of which the first 39 are pre-programmed with space for a further 60. Lessons 1 to 39 progress in an order similar to traditional typing manuals so that, for example, the first lesson involves the ASDF keys and you are recommended to use the appropriate fingers.

Each lesson involves three frames of Character Attack which, if successfully repelled, are followed by a bout of Word Attack. If all the words are zapped the first time they appear, then a session of bonus words follows in which more points can be gained.

Within any lesson you have a limited amount of energy, and energy is lost each time a mistake is made. The game ends when you run out of energy, so a strategy which may zap all the letters in typical block-busting Space Invader style will also be expensive in terms of energy. This means that it pays to minimise errors.

When the disc is booted, a menu allows you to set the playing speed, the starting lesson, to create a new lesson, to start a game or restart an old game.

The speed can be set from 1 to 99, with beginners being recommended to start somewhere between 1 and 19 and robots being advised to try something over 80.

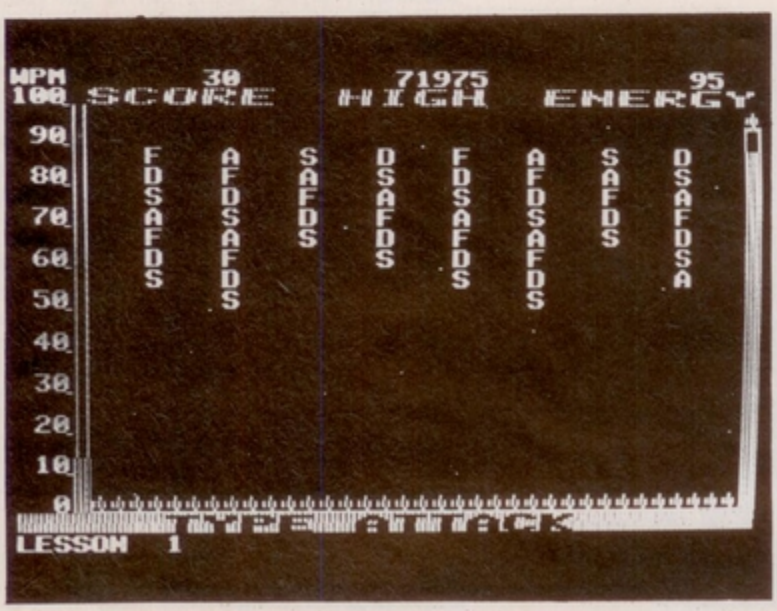
The Lesson Creator facility is also a valuable part of the Type Attack package. Using this, you can create a lesson based on your own choice of characters and words. Hence, if a particular combination of characters is giving you trouble you can tailor a lesson to suit you.

Alternatively, you could build up lessons to teach a particular vocabulary. This could be particularly useful for training medical, legal or any technical secretaries.

It is always dangerous to put two established concepts together because it is not always the case that the combination will be successful. However, I think Type Attack is a winning combination. Speaking as someone who enjoys arcade games, I improved my typing noticeably after only a few sessions.

I also tried the game out on a professional and she was delighted with it. The ability to set the speed, the starting level or even create new lessons means that beginners and experts can both have fun.

I wasn't sure whether this review belonged in the games or the educational section. Maybe we should start an educational games section for games like Type Attack. I would certainly be happy to think that my secretary was playing it in the slack times. – **Cliff McKnight.**



Type Attack . . . zap the letters to win – and learn.

Title: Type Attack
Authors: Jim Hauser and Ernie Brock
Publisher: Sirius Software
Requirements: 48k Apple II and one disc drive.

Keystone Cops let rip in the galaxy

And you couldn't be chased by a nicer bunch of notes

TO do justice to Microwave in a review we ought to send out cassette tapes with *Windfall,* firstly so you can hear the sounds yourself and secondly because I can't remember what either of the two main tunes are called.

The first tune you encounter is one of the things that non-pianists always seem to be able to play, much to the consternation of pianists. It's one of those mostly black notes tiddle-om-pom-pom tunes that only takes about two fingers on each hand, and it doesn't lose much by being played over the Apple speaker.

The second tune is the one everyone associates with the Keystone Cops chase sequences – you know, diddle-iddle-um, diddle-iddle-um, etc. Again, it doesn't lose by machine conversion and it is a great tune to be chased by. I'm surprised nobody thought of it earlier, although it may have something to do with the fact that nobody I know can hum more than the first two bars of it – the diddle-iddle-um bits!

Microwave is a maze game starring Teddy the Salvage Man. Teddy is the best salvage man in the galaxy, but his task of collecting interplanetary junk is complicated by the ubiquitous aliens. His only defence, other than running away, is to drop a microwave dish which beams out deadly rays for a short time. Aliens have enough sense to avoid the rays on the whole, but melt if they are caught in them.

The power packs for the microwave dishes are in short supply and must be picked up en route. In fact, everything except the bombs which litter the maze must be picked up before play can proceed to the next level. The bombs explode and if Teddy is close enough, so does he. They change just before they explode, so at least he gets a warning. As you might imagine, contact with aliens is fatal.

The instruction sheet doesn't say how many levels there are. The highest I've been is level 4, but most of the time I don't get off level 2. The instruction sheet also doesn't say that the ESC key can be used to pause the game. Teddy has three lives and as far as I know there is no way of gaining extra lives. However, in at least one other game from Cavalier I've been surprised to receive a bonus life not mentioned by the manual, so I can't guarantee that Teddy won't suddenly find a new lease of life.

The game can be played with joystick or keyboard, and the keys controlling movement and dropping of microwave dishes can be changed to suit your preferences. The sounds can be toggled off if you get fed up with them (or want a game in the office without anyone knowing), but I found that they added to the frantic feel of the chase.

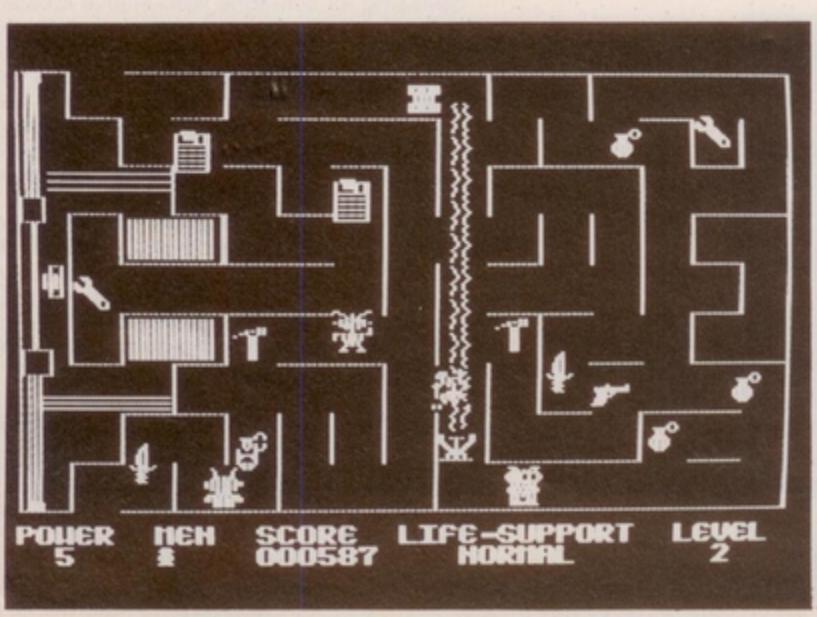
You need a sharp eye if you want to identify the various aliens because the 'dramatis personae' only appears briefly while the disc is booting. This is a pity, because true alien-spotters will want to know the difference between a Monty Chomper and a Trixie Tease, but pragmatically speaking, when you've been killed by any of them you're just as dead.

The aliens are variously described in the manual as parasitic, decadent, devious, diabolical, daringly destructive, viciously cruel, and volatile vixens, but in the final analysis they're out to get you.

When you achieve a high score you can enter you name. The top three scores are displayed at that time, and you can enter all your name instead of just three letters as in many games. It may seem a small point, but to someone with a five-letter name and only two initials, the games that insist on exactly three letters are a bit annoying.

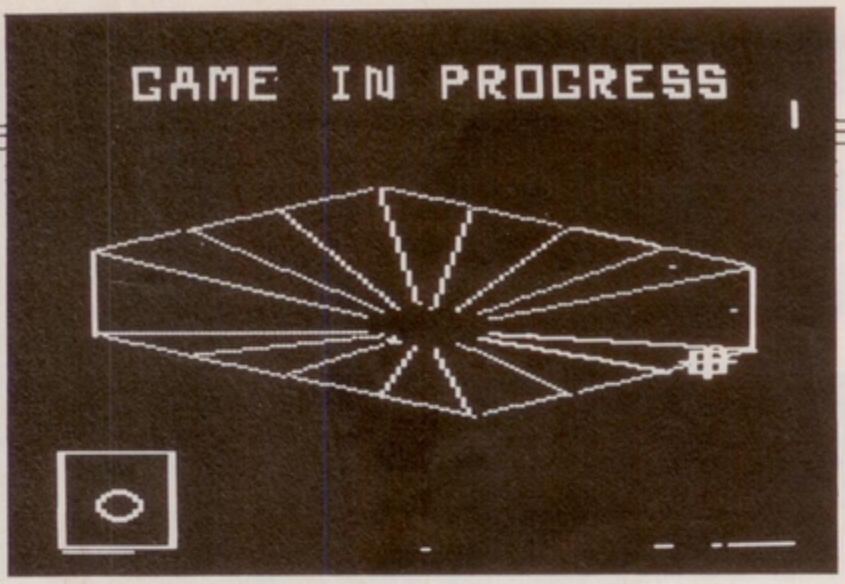
If you like maze-chase games, Microwave is worth buying on the strength of the excitement generated by the tunes. It would be nice to know how many levels there are, but it is difficult enough to keep most addicts busy for quite some time.

Cliff McKnight



Microwave busy screen, and musical, too

Title: Microwave
Authors: Jay P. Zimmermann and James L. Nitchals
Publisher: Cavalier Computer Corporation
Requirements: None stated



Locked to the rim of the Tubeway by beings from a geometric universe

Boldly go where no joystick has been before . .

IT had to happen, didn't it? I mean, Murphy's Law predicts it, but that's no consolation. Just when I acquire and install a joystick, I come across a great game which actually recommends *paddles.*

After struggling with games like Choplifter and Thief on paddles, I was delighted with the joystick – so delighted that I was determined not to reinstall the paddles.

My pig-headedness cost me a few extra games to get the hang of it with the joystick, and I can see that paddles might actually be easier, but I reckon I've cracked it. I suppose I'd better tell you about the actual game now. Are you sitting comfortably?

Once upon a time you were out on a quiet mission, boldly going, when suddenly the universe itself seemed to crack and tremble. Far from being on the interplanetary equivalent of the M6, you find you're trapped on the Tubeway, "a strange creation by beings from a geometric universe" (which probably means they have square heads). Their force fields lock you to the rim of the Tubeway as their invasion fleet swarms out of the warp.

Of course, all you have to do is save the world. This is a type of fighting you were never trained for, so you must master the alien rules of combat, learn to jump from hyperspeed to cruising almost instantaneously, track the enemy and destroy them when most vulnerable, watch for the caged destroyer who can suddenly enter the action.

What this means in practical terms is that your movement is restricted to the rim of the shape, the aliens are radiating out towards you and your job is to fire down at them. Turning the paddle or moving the joystick at normal speed moves your ship at incredible speed so you can scorch round the rim. If one of the aliens makes it to the rim and you collide, you're an ex-fighter.

As the blurb says, you must learn to change from hyperspeed to cruising and back again. If you let any aliens get to the rim you must fire through the Super Zapper, a white bar which moves round the rim and which will also return the Destroyer to its cage if it hits it.

There are 32 levels to Tubeway, and one of the options allows you to set the starting level up to level 8. As I said, paddles are recommended, but joystick is reasonable and the game can even be played on the keyboard. For once, I don't prefer the keyboard – largely because optimum play would seem to demand seven fingers on one hand! It is possible on keyboard, though, especially if you are manually dextrous.

In common with most games these days, Tubeway can be paused during play via the ESC key. I tend to take this facility for granted, but I played Apple Panic again recently and cursed the lack of it when the phone rang. Tubeway has two sound levels – normal and muted, or the sounds can be turned off. Also, the high score is saved to the disc but can be reset to zero during booting.

Tubeway *is* a different kind of arcade game and the action is very fast. In fact, it took me a few games to get a score and several games before I felt I knew what was going on, or rather, what had happened. Even after playing the game for some time, I still feel like a beginner, and I think it will be a long time before I manage to save civilisation as we know it. If you have paddles and have always envied people with joysticks, buy Tubeway and smirk quietly.

Cliff McKnight

Title: Tubeway
Author: David Van Brink
Publisher: Datamost
Requirements: 48k Apple II and one disc drive

QUICK SPINS

Beer Run: *Can you make it to the top of the Sirius Building? Can you catch the rope hanging from the blimp and swing across to the Olympia Brewery? Can you catch an Artesian, or can you only catch the beer cans they drop? It's thirsty work on the Beer Run.* (Sirius Software)

Prism: *A tale of the theft of the three Keys of Colour and the adventures of the young boy who must seek them. Three real gold keys have been hidden and will belong to the first people to unravel the hidden meanings in the story and discover their locations.* (International Software Marketing)

Birth of the Phoenix: *An adventure game with a purpose – to teach a beginner to play adventure games. The game disc comes complete with tutorial manual and covers the basic principles of adventure gaming.* (Phoenix Software)

Sheila: *A combination of arcade game skill and adventure game strategy is required as you battle the monsters who are holding the princess of Diolande. Each time you play you learn more, and when you are successful you move to a higher skill level. A game for novice and expert alike.* (H.A.L. Labs)

Super Taxman 2: *If you've played Taxman, then you'll know what to expect from this game. Collect all the money dots and avoid the irate citizens – unless you have an arrest warrant. The game has selectable skill level and can be played by up to five players.* (H.A.L. Labs)

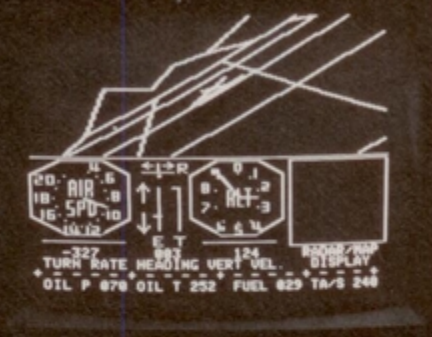
Pie-Man: *Your summer job in the bakery might be more than you bargained for. As an apprentice, you have to put topping on the pies and put them away when they come out on the conveyor belt. Can you avoid the hazards and win promotion?* (Penguin Software)

Spy's Demise: *Here's a game with a message – each piece of it hidden on each floor of the diplomatic mission. If you can avoid the guards, collect the message and decode it, you might win a real prize.* (Penguin Software)

Bug Attack. *The bugs are on the loose and they're hungry. You must defend your three gardens (cactus, clover and flowers) against the attacking bugs (ants, millipedes and medflies). You are a beetle armed with a limitless supply of stingers but you must avoid the deadly knives. Can you survive?* (Cavalier Computer Corp.)

The Asteroid Field. *Can you navigate your ship through a belt of perilous asteroids and alien spacecraft? Blasting the asteroids results in their splitting into smaller, more deadly chunks. You can use a hyperspace drive but you might finish up in worse trouble. Game includes Expert Player mode for master mariners.* (Cavalier Computer Corp.)

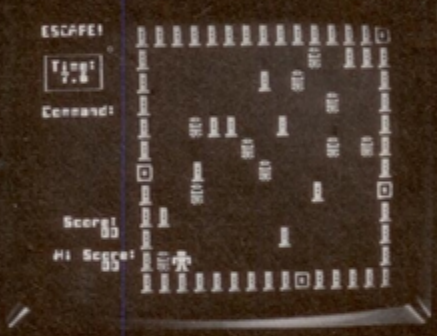
Introducing . . .
the SubLOGIC line of quality software for your Apple II



A2-FS1
FLIGHT SIMULATOR – Combines superior flight simulation with the best animated 3D graphics available. Practice take-offs and landings, other aerial maneuvers, declare war on the enemy. 16K cassette, 32K disk.

A2-PB1
PINBALL – The ultimate arcade simulation program, an exciting pinball game with the ball and flipper precision to make increased skill pay off. Includes 10 different play modes and 100 user-adjustable modes. 48K disk.

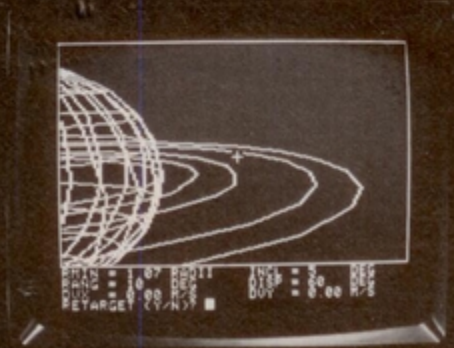




A2-SG1
ESCAPE! – A challenging game of skill and strategy. You've broken out of your cell and now the electronic guards are closing in fast. Can you escape? DOS 3.3 Applesoft 48K disk.

A2-3D1
GRAPHICS FAMILY – State-of-the-art 3D graphics. Define 2D or 3D wire-frame objects in any size and orientation, view them from any perspective. Offers variable field of view, color or hi-res (280 x 192) line generation, object instance nesting, and independent object manipulation. **Graphics Editor** lets you add 3D text to your scene, superimpose 2D text labels in upper- or lower-case, and record your entire presentation for playback. A BASIC interface is included to aid in the development of your own control programs. DOS 3.3 48K 3 disks.





A2-2DA
SATURN NAVIGATOR – A hi-res 3D adventure simulation of a space flight from earth to Saturn. Maneuver your ship into orbit around the ringed planet, rendezvous with the Saturn space station. Available as a complete package or as an adjunct to the A2-3D1 graphics package. Applesoft 48K disk.

subLOGIC
Communications Corp.
713 Edgebrook Drive
Champaign IL 61820 USA
(217) 359-8482
Telex: 206995

See them today at your dealer . . .
or contact SubLOGIC for further information.

"Apple" is the registered trademark of Apple Computer Inc.

CHOOSE YOUR WORDS WELL

By DAVID CREASEY

CHOOSING a word processing package is an entirely subjective matter, as is reviewing one. The vagaries of human taste affect the choice of a WP program far more than any other area in which Apples are used.

Windfall is often asked to carry comparative reviews of various packages, but with word processing that would be akin to doing a comparative review about shirts. All have collars, holes for the head and arms and torso, some have buttons, others zips, and different cloths and patterns are used. Ultimately the choice depends upon individual choice, to matching the wardrobe, and to a person's concept of value for money.

So, too, with word processing on the Apple II. What you buy must fit in with your, or your secretary's particular style, with what you are, or intend to be doing, and it must, at the very least, match your needs.

We examine four packages here – Wordstar, Word Handler, Supertext and Executive Secretary. Each review reflects the individual tastes of the writer – with some mention of other packages but with no brief to write a comparative review.

There is no doubt that any word processing package will help you produce documents, form letters, mailing labels, your novel – in fact anything that you are currently doing with a typewriter or pen – more efficiently, more economically, faster and more enjoyably.

A person's first experience with an Apple word processing package is likely to leave him breathless and amazed – and any package will seem impressive. It is once you have got over that initial awe that you will be in a position to make a choice of a package that suits YOU.

Some of the basic features that all packages should offer include:

- Easy movement of the cursor around the screen (and document).
- A backspace facility so that you can retype or make simple corrections.
- The ability to insert or delete a character, word, sentence, paragraph or even a page anywhere in your letter or document.
- The ability to move blocks of text within a document and to incorporate text from a separate document.
- A formatting capability, allowing you to layout your text as you want to, or to rearrange at will.
- It would be nice to "see" the printed page on the screen. With most packages this means an 80 column display is required.
- The ability to bring standard formats of the disc into your text.
- The ability to save your document on disc or tape (as you would file a paper in a cabinet) and later to recall the document to screen for editing or subsequent printing on paper. (All commercial word processing packages do this – we mention it for those readers who have never used a WP package.)
- A FIND command is useful and can be used with some of the facilities outlined above.
- The ability to merge elements of a data base program is useful when writing the same letter to a large number of people. If this feature appeals to you then the choice of a WP package will be influenced by its compatibility with your database.

Other factors to be taken into account include cost, not only of the package itself but of any extras that must be purchased – such as a Z80 card if you are using a CP/M based package, and an 80 column card for 80 instead of the normal Apple 40 characters on screen.

Many packages perform similar functions, although achieving them in different ways. Some incorporate far more features than most people will ever need, and it certainly pays to look around for a package that will do what YOU want it to do.

Remember that an Apple with the relevant software package will help you do whatever it was you have been doing up to now – but better and faster.

☐ In future issues we'll be reviewing Format 80 for the II and IIe, as well as word processing packages for the Apple III, including Word Weaver III and Word Juggler.

then pick a package to process them...

WORD PROCESSORS WORD PROCESSORS WORD PROCESSORS WORD PROCESSORS

SUPERTEXT

"SUPERTEXT – the most comprehensive word processing software available for the Apple," claims Muse and since nobody is likely to have personal and in-depth experience of every word processing package for the Apple it seems a fair start to let them tell us how good they are, and then to see if we can fault them in a major (or even minor) sense.

I'd better make my own allegiances clear at the outset, I have used versions I and II (3.2) and now this latest version of the 3.3, with 80-column facilities.

I once showed a young girl how to use Supertext. I'll never forget her wonderous speechlessness when she saw those letters dancing around on the screen. That was on Supertext I in DOS 3.2, and the package even then was fairly well put together.

Well, after a few days practice I had shown her how to save text, load it, move the cursor around, add, change, delete and so forth, and she was quite able to manage for herself.

The only difference which would have improved things was the facility for accidental resets. Then it was a complex process of monitor, Basic, CALL 4096, whereas now it's only CTRL-Y. There was never any problem, and she didn't have A levels!

There are two versions of Supertext word processor, one a 40/56/70 column variety which includes a facility called Character Designer that lets you create display characters any way you wish in cursive, foreign languages, and with special symbols; and the other, which I am using to write this article, the uprated original version with a Videx 80 column board option. The package will also handle Smarterm, Videx and full view 80 column boards.

The 40/56/70 column version does not require additional hardware for lower case display, whereas the 80 column one requires either the 80 column board or a suitable upper or lower case adaptor.

It is a large package, especially when one includes the additional modules, Address Book, Form Letter and Sensible Speller.

The user will find it takes a few months to master the entire system. This is not a problem, and it is probable that it couldn't be any quicker simply because one has to learn a new system, and the more comprehensive this new system then the longer it will take to learn entirely. That doesn't mean to say that the new user could not be operational within a few minutes.

At an overview level it is necessary to accentuate the general requirements of a new user – what he must do before the software and the hardware together produce the desired results.

The package works by storing the whole text within the computer memory and displaying a portion of this text on the monitor screen. The text may be many thousand characters long, a cursor on the screen can be placed anywhere within that text, any changes, additions or deletions are activated at that cursor position. The cursor as well as the screened portion of the text is movable through software controls.

I find that I use a few keystrokes often: ESC ESC to get out of a particular mode (add, change); CTRL-A or CTRL-C to get into these modes respectively. To move the cursor around (or rather "myself" within the text) I use the combinations of RETURN/slash/left-arrow/right-arrow to move the cursor one position at a time, or combined with ESC to flip within the overall text. They are fairly simple to pick up. New users are recommended to start here.

Supertext isn't the only friendly word processor, but I don't know a better

The cursor movement direction is determined by typing "+" (forward) or "–" in the cursor mode, and if you press P or L that part of the text which is on the screen will move in the direction of the "+" or "–" sign by either one screen "page" or one line respectively.

Pressing ESC + will move to the end of the whole document, ESC – to the beginning, ESC RETURN to the top of the screen text and ESC / to the bottom, ESC right-arrow to the rightmost character on the line, ESC left-arrow to the leftmost character on the line.

So much for cursor movement. Now to the real work of adding, changing and deleting text. A CTRL-A will enter the Add mode, from which one can type anything onto the screen. The contents of the screen will be saved onto a disc.

When Supertext is initially "switched on" or loaded, the first step on the "loading . . ." message having disappeared and the disc having stopped whirring is to press CTRL L. The boot disc will whir, then the instruction S62 is input to switch to the second disc, if you have one. In that case the second disc file catalog comes up.

A file is selected and the system then "loads" that file. Similarly, when saving a piece of text the keyboard entry CTRL S results in the same directory display, but this time the user either inputs a desired file name (could be an existing one of course) or existing file number.

The package allows access to DOS commands through CTRL D so that you can RENAME, DELETE, LOCK or UNLOCK files. For non-computerites LOCK and UNLOCK is a means of protection. You must UNLOCK a LOCKed file before you can save another text in place of the existing one, or before DELETEing it.

There are a lot of little tricks within the software such as copying the remainder of the line above the cursor (ESC ;), copying the word above the cursor (ESC /) and adding spaces from the cursor to the end of the line (ESC SPACE).

One of the most useful is the ability to press CTRL-V and set a block-marker (a flashing bracket) to the beginning and end of a passage that you would like to copy, save, delete, unmark or move. Hit ESC V followed by one of the letters displayed (C,S,D,U,M) and presto – it happens, and very convenient it is too.

Another very useful facility is that it is possible to change anything within the text, even if you don't know where it is. You instruct the program to find an occurrence of a word or words and to replace it with your new choice.

To look at the printer routines type Q to leave the cursor mode (the mode you are in when you aren't in something else – as shown on the bottom right of the screen) and then hit P to put the printer routines into the preview mode, RETURN and then use the standard way of printing things, CTRL-X.

At the bottom of the screen appears the question "number of copies required?" and upon inserting a number followed by RETURN the text will appear on the screen exactly as it appears on the printed copy, all the format instructions, line centering, tabulations, page number

WORD PROCESSORS WORD PROCESSORS WORD PROCESSORS

EXECUTIVE SECRETARY

instructions and so forth removed.

Here I would use the 80 column facility for the first time as the printer will normally print up to 80 characters (on A4) depending on how the format parameters have been set.

My initial reaction to the 80 column facility was that it would be only of use for previewing, unless you are totally familiar with the funny symbols used by Videx. These replace inverted characters, which appear on the 40 column Apple screen where control characters are displayed as inverted capital letters. I haven't looked at the 40/56/70 column version, so I don't know if the inversion problem occurs there.

The difficulty isn't the typing, but the fast checking of your script for errors, which can be done very quickly with practice. However despite my initial misgivings, after using the 80 column facility for a week I found that it is 100 per cent acceptable and I switch it on every time.

Just now I wondered how many words I have written, and so used the simple key codes which instruct the software to count each space in the text. On the basis that spaces usually only occur between words and on finding, say 1266 occurrences, I can be reasonably sure that I have about that many words.

Incidentally, loading the Videx card software may seem complicated, but it isn't.

In order to return to the 40 column standard Apple II display it is necessary to completely reboot (switch off and on again) the system. This really shouldn't be necessary, and Muse should have managed to add an "Apple-40" program to the program disc.

The saving process tells me how much free space I have on disc, and the standard query screen display shows how much free core I have for text. The query status also records the word count I did a few lines back.

Another comment to Muse – your handy quick reference card is in need of updating! To the reader, it covers nearly all of the features on a small convenient crib sheet, but you're unlikely to even need this after a little practice.

On the manual itself, this is one of the best presented and clearest I have come across, a pity everyone else's can't be as clear!

Supertext isn't the only friendly word processor but I don't know of one better. This is one of the very, very few truly professional products I've ever seen on a micro.

Peter Thomason

HAVING been an avid supporter of the Magic Window package because of its simplicity of operation and acceptable performance on a 40 character screen, my company's transition to a more sophisticated package was somewhat reluctantly agreed to with the advent of Applewriter II and the purchase of an 80 column card.

Having therefore undergone the unheaval of retyping all our standard letters, any new package would have to be exceptional to encourage us to change again.

The Executive Secretary produced by Sof/Sys, Inc. of Minneapolis, has achieved that distinction, particularly with our secretary – the package is definitely for secretaries and not primarily for computer operators. Unlike Applewriter II it is secretary orientated from beginning to end, the contents and approach being that of a stand alone word processor.

As with most good word processing packages, it can be used effectively at a variety of levels starting with a simple document editor working in either 40 or 80 columns. The editor includes a prompt line, permanently showing the options available at any time, which helped our secretary to produce acceptable letters after just a few hours with the manual.

One very simple but useful feature is the way the shift key is used to amplify any edit command – using "D" normally deletes one letter, but shift "D" deletes one word, or "minus" takes you back one screenful, or by typing "shift minus" takes you back to the beginning of the report.

Having mastered the simple editing routines you find that the program also includes mark and delete, mark and move and mark and replace commands for global text editing. The format of the final printed document can be determined from the editing. However with the aid of imbedded printed commands such as > in 10 (this particular command indenting subsequent lines by 10 characters) a very powerful and easy to use formatting capability is provided. Other imbedded printing commands allow you to:

A) Centre text.
B) Automatically page number.
C) Stop printing and display on the screen a pre-user defined question to be inserted in the letter, eg please insert today's date.

Having mastered the editing of some 49 imbedded printing commands, we have now started to utilise the print Visicalc facility which allows the automatic inclusion of VC printouts within our reports, and the electronic card file system. which provides a complete card index system for all customers. This can be merged automatically into standard letters without the need of either program writing or pre-prepared programs.

All that is required is to specify the criteria governing the selection of particular cards and then list within the letter the line numbers to be printed. We have found this particular feature far easier to use than the Applewriter II equivalent.

As yet there are many features of the package that we have not utilised. They include:

- The 10,000 word dictionary to check your spelling (available as an extra).
- A facility for selecting particular predetermined paragraphs for the preparation of standard letters.
- An electronic mail facility allowing the transmission of documents via a modem. (The program claims to dial the telephone number required automatically, although we have not had the opportunity to operate this on the Telecom network.)

The only real drawback we have found to date is that when using the edit mark it takes some time to determine exactly where the character will be inserted or deleted. This caused a number of problems, particularly when trying to insert or delete one character from a word. Often we would delete one to the left or right of where we wanted to be.

From our secretary's view, having operated an AEX Wordplex for six months, the Apple with the Executive Secretary has given Linda some very pleasant surprises. It therefore comes highly recommended for those situations where a secretary and not a computer programmer is going to operate the system.

Paul Madder

Recommended where a secretary, not a computer programmer, is to operate it

WORD PROCESSORS WORD PROCESSORS WORD PROCESSORS WORD PROCESSORS WORD PROCESSORS WORD PROCESSORS WORD PROCESSORS WORD PROCESSORS WORD PROCESSORS WORD PROCESSORS WORD PROCESSORS WORD PROCESSORS

WORDSTAR

WHEN it comes to word processing the choice of software is tremendous. There are hundreds of different packages, all offering many and varied advantages over the rest in their field.

The fantastic things these word processors can do is even more incredible when you take into account the keyboard of the Apple II – no numeric keypad, no redefinable keyboard, no function keys. It must be one of the worst keyboards available for any computer.

With such a basic arrangement, there is a problem in getting the program to do all the things needed to change a simple typing program into a true word processor. Software houses have used one of three solutions – menu driven programs, extensive use of control and escape keys or a combination of the two.

Each of the first two solutions has its attendant problems. With a menu driven word processor you just keep typing until the text has finished, go back to the menu, and start formatting your text by selecting a different menu option.

Often with menu driven WPs, when you're at the typing stage you can't see the end product on the screen until it has been through the formatting stage.

Where a menu driven program has been elected by the software house there is usually some cursor control incorporated in the typing stage and, by definition on the Apple, this means the use of control or escape keys.

Where extensive use of control keys is the solution, the operator has to remember a lot of special codes, which means throughput is reduced if the operator is not familiar with the program. On the plus side most, but by no means all, of this type of word processor format the text directly on screen.

The third solution is more likely to be easier to use, particularly with the Apple's keyboard. If each menu option uses the same control codes with good mnemonics in as near a standard configuration as possible, the word processor should have few, easily remembered, control codes, resulting in a very easy-to-use program. If it has on-screen formatting as well, everything should be complete.

Wordstar is considered the industry standard. As a CP/M program it will require a Z-80 card and an 80 column card if you don't already have them.

It comes into the last category of program, using control keys almost exclusively for its operations, but has very good, easily used, quasi-menu options as well.

Instead of true menus, Wordstar uses two control key sequences for each of its many built-in functions. The first calls up a sub menu and the second is the actual selection from that menu.

In fact it doesn't use menus at all. Instead it calls on extensive help screens, with three different levels of help. The first has the help menu on screen at all times. As you select the menu heading that new menu is loaded from disc and replaces the main help menu. You then select from the new menu whatever was wanted, or press the space bar to reject the menu. Once the selection has been made the program returns to the outer level menu.

It may sound like a slow, longwinded operation but use of a software type-ahead buffer means that during all disc access the keyboard can still be used. The help screens take up the top 10 lines of the screen, with the rest available for on-screen text editing.

As the user becomes more familiar with the main heading control codes, which should only take a short time, the initial help menu becomes redundant. The help level can be changed at any time from beginner to one of the more expert levels. Even then you don't have to remember all the control codes. All you need is the heading code.

System close to the performance of a dedicated word processor at a fraction of cost

With the second level of help screens no menu is permanently on screen, and so all but the top two screen lines are available for editing. You simply type the control commands as and when you need them.

If you can't remember what the second code should be you type the heading code and wait about a second. If Wordstar receives the first code, but not the second, it displays the relevant help screen at the top of the screen as a reminder to the user. You then select from that.

The text is not restricted to computer memory, which means that documents and programs can be edited up to 150 columns wide, and the length is only restricted by the amount of disc space available. Where the screen width exceeds the standard 80 columns automatic horizontal scrolling takes place.

The cursor controls take the form of a block of control keys on the left side of the keyboard, giving easy one-handed operation. These key functions have been well thought out, and are very easy to use.

The cursor can be moved left, right, up, and down by single steps, or left and right by words, up and down by 10 line blocks. Markers can be set anywhere in the text so that the cursor can be sent directly to them from anywhere else in the text. In the same way it is as easy to delete characters, words or marked blocks.

The only thing missing from the cursor control is the ability to move a page at a time. There are occasions when you want to move from the heading of one page directly to the next page heading. Wordstar does not do this and so markers must be used to implement this function.

Moving text around, whether to and from disc files or within the document, is just as easy. You simply have to mark the beginning and end of the text to be moved. This is then displayed in inverse, provided you have a good 80 column card such as the Vision-80.

It is then a simple matter of placing the cursor at the point you want the marked text to begin, issuing a command – and the text is moved. It is still in inverse, with the markers in place. When satisfied that the text is correct, a second command can be issued to hide the markers and switch off the inverse.

All the time you are editing with Wordstar the screen displays exactly how it will print. The program can fill justify, micro-justify, print super and subscripts in up to four different character fonts. Obviously these fonts are not displayed on the screen, but the facilities for getting them onto paper are provided.

Built into the program is a print spooler, which allows you to continue editing a file while another is sent to the printer. If your printer doesn't have a print buffer on the interface, this process does reduce the speed with which you can enter data, but the facility is there. With a buffer, there is very little reduction in throughput.

As already mentioned, it doesn't take long to get to know Wordstar. It is very easy to use and is very powerful. I have used many of the other word processors on the market and have yet to find one that beats Wordstar.

It is a complete word processor and well deserves its good reputation. For the business man, with a range of word processing applications, you couldn't do any better – but you could do a lot worse with some of the cheaper products.

Wordstar is not cheap. Discounting the cost of the basic Apple, disc drives and printer, a complete Wordstar system including Mailmerge, Spellstar, Supersort, and Datastar could cost about £800, but that would be a very powerful word processor indeed.

With Wordstar and Mailmerge together (available for £200) the businessman would have a system close to the performance of a dedicated word processor for a fraction of the cost, with the added bonus of the computer doing other useful work when not text editing.

Terry Thompson

WORD HANDLER

I LIKED nearly everything about Word Handler. It was the first word processing package I'd come across that was as simple to use as a typewriter – and yet which offered many features of packages three times its price and much harder to learn.

Perhaps more significantly the package was one which my son and my secretary (both of them relative newcomers to the Apple) were able to use productively after only 15 minutes with me prompting them over their shoulders. Both were fluent in the basics after less than an hour's practice and the more obscure (or less used) features offered were easily followed through use of the excellent manual.

What else does Word Handler offer apart from ease of use? It allows you to see on screen, as you type, exactly what will be printed out on paper – including page endings, underlined, bold and superscripted characters. And you get 66 columns on screen without having to purchase an 80 column card.

Standard features such as insert, delete and copy are incorporated and cursor movement, reduced to a few control character commands, is by character, word, line or page in either direction. At all times a label at the bottom of the screen tells you the name of the file, or document you are working on, the relevant page number and whether your next entry will be in capitals, underlined, in bold or superscript.

Setting up the package for various printers, choosing whether to use the 66-column format (which means that the line you see on the screen is the same as what will be printed out) or the extended line option, and other details are clearly explained in the manual, although an unwary first time user might find the selection of printer options baffling.

You only have to do this the first time you use the package, or when you change the printer or printer slot, but you have to hold down the Apple's space bar WHILE you are booting the program. Unless you do so the program will bypass the printer selection options and go straight to the select column format option.

Word Handler operates in three different modes, Idle, Edit and Insert, and to be able to use the package efficiently it is important to learn what each mode does so that you can move between them without having to think about it. This fluency is essential to the proper use of the package, but is probably the only concept that is slightly difficult to grasp at first.

Easy to use, the package offers lots of features at a reasonably low price

After booting and choosing the column width option the package puts you into the Idle mode. You always start here, and return to it by keying CTRL-E (for end of edit) after working on any document and file. It is here that you choose what work you want the package to perform.

Options cover printing, which disc drives are to be used, Erase, Rename or make a Back-up copy of a document, Fill-in (for use as a standard letter option with different names and addresses) and Index.

If you wish to create a new document or file merely type in its name, press RETURN and then press the space bar. If you now type INDEX a list of the existing file names on disc (similar to Catalog in DOS) as well as the remaining space available, is displayed on screen.

If you want to work on an existing document merely type in its name and press any key. The program loads the document from disc into the Apple's memory and places you in the edit mode, where you can review and amend the document as required. However assuming that you have just created a new document and that there is nothing there for you to review, you'll need to write something before being able to edit it!

Type anything at this stage and you'll hear a warning bleep from the Apple – Word Handler's way of saying that you can't do something. You have to move into mode three, Insert, by pressing CTRL-I.

Most of Word Handler's commands involve a control character held down while pressing the first letter of the appropriate word. The majority are obvious, such as S for superscript, C for copy, D for delete, W for word, L for line and P for page, but slightly more obscure are K for capitals lock or T for 'til (search backwards or forwards until . . .).

When in Insert mode you can type away merrily in normal, bold or superscripted text, underline, insert page breaks or spacing between lines (between 1-2½ in half line steps) and change the margin justification between "even" and "ragged".

On-screen characters are in lower case (software generated) with single capital letters achieved by pushing the ESC key twice. A simple shift key modification which enables the Apple II shift key to function in typewriter fashion, is described in the manual.

By pressing the right arrow key you are taken out of Insert and back to the Edit mode where cursor movement is rapidly and easily accomplished. The right and left arrow keys move you one character at a time (they have different functions in the Insert mode) and by holding down the

IIe has the answers

THE Apple II was not designed as a word-processor. Its keyboard is better suited to programmers and hobbyists than to professional typists. However such is the II's popularity that a profusion of word processing packages has been written for it – most of which help to overcome the limitations of its keyboard.

These shortcomings are not due to the mechanical quality of the keys, which are excellent, but to a lack of such features as a shift key and full upper and lower case characters.

It is important to note that the limitations do NOT invalidate the Apple for word processing, and many software packages incorporate minor hardware modifications that give the II upper and lower case with a true shiftkey/upper case function.

With the release of the IIe Apple has produced a popular machine in which these "flaws" are eliminated – and which complements the top quality software available for it. The keyboard takes into account the needs of the typist or secretary, in much the same way as the Apple III.

CTRL key you can move by a letter, word, line or page by pressing W,L,P in any combinations. The direction of movement is determined by pressing the left or right arrow.

There is no facility to move to the beginning or end of the document – but this is easily achieved by using the Search Until feature (CTRL-T) and getting the program to search for a non-existent combination of symbols such as @£*. It will search unsuccessfully for these until it reaches either the end or the start of the document, depending on which direction arrow you have pressed.

If you want to insert a word, or character or new passage into a document you move the cursor (a hollow rectangle) to the relevant place in the text and then switch to Insert (CTRL-I). Any text to the right and below the cursor disappears while you make your additions, but returns to the screen once you end the insertion and return to Edit by pressing the right arrow.

To use the Copy and Delete commands the cursor has to be placed at the beginning of the relevant text during the Edit mode. Pressing CTRL D once highlights a single letter that you wish to delete. CTRL-D-W highlights a whole word for deletion, CTRL-D-L a line, and the combination of CTRL-D-P a page. The highlighted text will be deleted on pressing the right arrow key, but you can change your mind by pressing the left arrow key.

The Copy command works in exactly the same way. So it is possible to copy anything on the page (the copied segment is stored on disc) and reproduce it elsewhere in the script, to Delete any portion of the text or to combine the two functions so that a portion of text is deleted from the page and stored on disc for later recall.

It is not possible to label the copied segment, although the program does store it on disc as part of the overall document. You can load a second document, work on it, save it and then return to the original to find that the segment copied can still be recalled. However it is not possible to copy a segment and then reproduce it while working on a different document.

When printing a document (from the Idle mode) you can nominate which page, or combination of pages, you want to print, provided only that you list them in ascending order such as 1-3, 7, 9, 11-15; and a print run can be interrupted at any time by pressing the right arrow key.

The format of the document to be printed, as well as page headers and footnotes, can be selected by pressing CTRL-F for a format menu during Editing. The format chosen is stored on disc with the document and is not affected by the formats of any other document on file. Note that when printing each page is self-contained. Word Handler automatically forces a page feed when there is not enough room on the page to fit the next sentence.

I have four criticisms of the package, three minor and one major. I didn't like the fact that when you saved a document to disc any tab settings created were deleted and had to be re-set for any further work on the document. The package also lacks a facility to move the cursor backwards by a paragraph at a time (which would fill the irritating gap between moving by a line or by a page at a time) and it would be useful to have access to DOS commands.

A major reservation is the difficulty in transferring information between different documents. The Get command allows you to transfer material from a secondary disc to the document currently in memory, but the incorporation procedure is tedious and awkward. (It is easy enough however to move blocks of text around within a single document.)

One of the most important things to remember about microcomputers and their related word processing packages is that they are made purely for sale in a capitalist market.

Those romantic idealists among you have to face up to the fact that no one is making anything purely to be nice to you, or for your special benefit or for the good of your world (be it business, academic or whatever.) They make all these wonderful things purely for profit. If it is nice enough, or good enough, you'll buy it – and that is their sole concern.

Using that as a criterion I think a lot of people will buy Word Handler for their Apple IIs. It is easy to use, the manual is straightforward and effective, and the package offers a lot of features at a reasonably low price.

A sister package, List Handler, which gives access to a database and form-letter writing facility, is also available.

If you want to create text (letters, home accounts, any writing) and you don't have to shuffle text around between several documents at a time, Word Handler could be the answer.

David Creasey

Word processing's true power

WORD processing is a key application in business – but what exactly is it? Authors Larry and Martin Goldstein *("Basic for the Apple II – Programming and Applications", published by Robert J. Brady Co.)* define a word processor as "a device made by combining the traditional typewriter with the capabilities of the computer for storing, editing, retrieving, displaying and printing information."

They add: "The basic concept of a word processor is to use the microcomputer as a typewriter. However, instead of using paper to record the words, we use the computer memory.

"First the words are stored in RAM. When you wish to make a permanent record of them, you store them on disc as a data file. As you type, the text can be viewed on the video display.

"This part of word processing is not revolutionary. Its true power doesn't come into play until you need to edit the data in a document.

"Using the power of the computer, you can perform the following tasks quickly and with little effort: Move to any point in the document; add words, phrases, sentences, or even paragraphs; delete portions of the text; move a block of text from one part of the document to another; insert standard pieces of text such as resumes or company descriptions from another data file, or print the contents of a file according to a requested format."

Joyce Arnston in *"Will Someone Please Tell Me What an Apple Can Do", published by Sterling Swift,* notes that one of the primary functions of any office is to communicate information, both verbal and written, and she says: "The need for word processing rose out of the inefficiencies inherent in the frequent retyping of documents.

"It was obvious that time and money were being wasted by retyping an entire document when only a portion of it was changed.

"What was needed was some way to store the document in a form where it could be manipulated and revised without retyping. With the birth of computers and solid state electronics, the word processor was invented.

"What most companies call a word processor is a general purpose computer with a specially designed screen and keyboard running only one specific 'record' – a word processing program.

"Similarly the mutli-purpose Apple becomes a word processor with the insertion of a 'record' containing a WP program."

C/WP BITES £200 OFF APPLE II E

Meet the Apple II E, the brand new much improved version of the tried and trusty Apple II. The "E" has (almost) everything you ever wished the Apple had. The memory has been increased to 64k with an optional expansion to 128k. The keyboard has sprouted extra keys, making 63 in all, with proper shift keys and four arrow keys to drive the cursor round the screen. The screen boasts capitals and lower case letters (40 to a line—or 80 with a low cost optional add-on). And for brilliant colour the "E" has a built-in PAL encoder—just add a modulator and it plugs straight into your colour television set.

The 80 column card is only £70 (no, it won't work with the Apple II Europlus). For £150, you can buy another card which provides both 80 columns and an extra 64k of memory which switches in and out as required.

Apple II has joined the big league.

But there's one thing Apple Computer has not changed. The "E" still runs all (or almost all) Apple II's enormous library of software without reprogramming or adaption. And you can still use the disc drives and expansion cards from the Europlus (except for the 16K RAM card which you no longer need).

Alas, the "E" costs more than its predecessor. But C/WP has had its way and is cutting £200 off the recommended retail price. The "E" is yours for a modest £645 plus VAT.



Prices do not include VAT.		RRP	C/WP Price
Apple II E		£845	£645
80 column card		£80	£70
80 column card + 64k		£180	£150
Monitor and stand		£170	£130
Disc drive with controller		£345	£270
Disc drive without controller		£245	£220
C/WP Contour Winchester Disc	3 Mb	—	£995
	6 Mb	—	£1195
	12 Mb	—	£1495
	21 Mb	—	£1995
Multiplan		£185	£175

C/WP

OUR PRICES STILL TURN OTHERS GREEN

108 Rochester Row,
London SW1P 1JP
Telephone: 01-828 9000

'Ware those Pascal REWRITEs

Error checking in Pascal is very good in most areas. However, beware when you REWRITE a file in Pascal.

If you REWRITE to a DOS or CP/M disc, no ERROR will be flagged and while the program will continue merrily on its way there will be no result at the end of the day.

In addition, once the file has been REWRITEn to the DOS or CP/M disc all the other I/O commands are affected and will not flag an ERROR to this supposed disc file that doesn't really exist.

To overcome this, logically, you have to take out the DOS or CP/M disc and make sure that it is replaced with a Pascal formatted disc.

Terry Thompson

CALL commands

Here are some useful CALL commands affecting the cursor, from **Ajay Kumar Agrawal.**

CALL −1036(SFBF4) moves the cursor one space right. This is the same as ESC A.

CALL −1008(FC10) moves the cursor one space left. This is the same as ESC B.

CALL −922(SFC66) moves the cursor one space down. This is the same as ESC C or CTRL J.

CALL −998(SFC1A) moves the cursor one space up. This is the same as ESC D.

Break that phone list pattern

The original Apple phone list program found on the System Master insisted that the phone numbers be entered in a set pattern or format such as: xxx xxx xxxx. This meant that a number such as 01234 56789 would have to be entered as 012 345 6789, otherwise the program wouldn't accept it.

Here is a modification which allows you to enter the phone number as you read it. It is designed to be incorporated within the Apple Phone List. If run in isolation the RETURN command in line 6140 will result in a RETURN WITHOUT GOSUB error.

Gordon Watson

Duplicating text screens

Programmers who want to duplicate a text screen to a printer may find a problem with the strange way that the Apple text area is memory mapped.

The three lines in this routine PEEK the RAM in the order that appears on the screen and send the characters to the printer.

Note that the program will not work if your printer interface reflects text to the screen, unless you can switch off the full duplex mode.

Andrew Essen

```
1000  PR# N: REM  N= PRINTER SLOT
1010  FOR A = 0 TO 2: FOR B = 0 TO
      7: FOR C = 0 TO 39: PRINT  CHR$
      ( PEEK (1024 + (A * 40) + (B
      * 128) + C));: NEXT : PRINT
      : NEXT : NEXT
1020  PR# 0
```

```
4000  REM       ENTER LISTINGS
4010  HOME : IF NR >  = 150 THEN
      VTAB 12: HTAB 12: PRINT "DA
     TA TABLE FULL!": FOR I = 1 TO
     2000: NEXT : GOTO 25000
4020  POKE 32,3: VTAB 10: CALL  -
     958: PRINT "ENTER NEW NAME A
     ND PRESS 'RETURN'.": PRINT "
     (USE NO COMMAS, COLONS OR QU
     OTES.": PRINT "TWENTY-FIVE C
     HARACTERS MAXIMUM.)"
4025  REM    IN THE NEXT LINE, TH
     E STATEMENTS  'N=1' AND 'N=0
     ' HAVE BEEN ADDED TO ALLOW I
     NPUT OF NUMBERS IN THE CORRE
     CT ORDER (SEE 6150-6200)
4030  VTAB 14: INPUT "-> ";A$:N =
     1: GOSUB 6100:NN$ = B$:N = 0
     : IF NN$ = "" AND S = 5 THEN
      POKE 32,0: POP : GOTO 25000
4035  IF NN$ = "" THEN  POKE 32,0
     : GOTO 25000
4040  IF  LEN (NN$) > 25 THEN  PRINT
     "": GOTO 4020
4050  VTAB 10: CALL  - 958: PRINT
     "ENTER NEW NUMBER THEN PRESS
      'RETURN'."
4060  VTAB 13: INPUT "-> ";A$: GOSUB
     6100:NP$ = B$: IF NP$ = "" AND
     S = 5 THEN  POKE 32,0: POP :
      GOTO 25000
4065  IF NP$ = "" THEN  POKE 32,0
     : GOTO 25000
4070  IF  LEN (NP$) <  > 12 THEN
      PRINT "": GOTO 4050
4100  REM   IS ENTRY CORRECT?
6100  REM   REMOVE CONTROL CHARS.
6105 B$ = "":C$ = ""
6107  IF  NOT  LEN (A$) THEN  RETURN
6108  IF N = 0 AND  LEN (A$) <  =
     12 GOTO 6150
6110  FOR I = 1 TO  LEN (A$)
6120  IF  ASC ( MID$ (A$,I,1)) >
     26 THEN B$ = B$ +  MID$ (A$,I,1)
6130  NEXT I
6140  RETURN
6145  REM   LINES 6150 TO 6190 'S
     ORT OUT'THE PHONE NUMBER AND
      ADD A LEADING SPACE (OR SPA
     CES) SO THAT IT IS EASIER TO
      ENTER AND ALSO TO SUBSEQUEN
     TLY RE-READ IT"
6150 A = 12 -  LEN (A$)
6160  FOR I = 1 TO A
6170 C$ = C$ + " "
6180  NEXT I
6185  IF  LEN (A$) = 11 THEN A$ =
     " " + A$: GOTO 6110
6190 A$ = C$ + A$
6200  GOTO 6110
```

POKE commands for added security

Many of these POKE commands are extremely useful, writes **Alan Dubost,** and may be included in programs to give added security.

POKE 33,33	Removes unnecessary spaces in LISTings of programs
POKE 50,128	Make LISTings and CATALOG invisible
POKE 214,255	Make program RUN when any command is issued
POKE 2049, 1	Make first program line LIST list repeatedly
POKE 1010,102	Makes
POKE 1011,213	RESET=RUN
POKE 1014,165	Makes
POKE 1015,214	"&"=LIST
POKE 44505,234	Reveal DELETEd file
POKE 44506,234	names in CATALOG marked with "C"
POKE 44452,24	Allow 20 names before
POKE 44605,23	CATALOG pause. 18 normally.
POKE 44599,234	Stop CATALOG at each file name and wait for any key press
POKE 44596,234	Cancel CATALOG
POKE 44597,234	pause when screen is full
POKE 44598,234	
POKE 40514,52	Allows binary greeting program

● Many of these POKES have appeared in past issues of Windfall, but it is useful to have them all gathered together.

Any new user who is unsure what they mean can gain simple and first hand experience of the power of PEEKs and POKEs by loading a program which carries out POKEs, as outlined below:

Type **POKE** followed by the two numbers listed separated by a comma (e.g. **POKE 33,33**).

The first number tells the Apple which memory location or pigeonhole to use. The second is the actual value that will be placed there. – **Peter Brameld**

I have discovered a difference in the way some arithmetic expressions are evaluated in TASC compiled and interpreted Basic that can give an OVERFLOW ERROR in the compiled version. The expression

```
100 X = A% * 1000 + B%
```

will always execute in interpreted Basic. However, in compiled Basic you will get an OVERFLOW ERROR if the value is > 32767. The compiled Basic seems to work in integer until meeting a real variable, but it doesn't get that far.

You can cure it by writing:

```
100 A = A%
110 X = A * 1000 + B%
```

then the compiler converts to reals from the start of the calculation. Note:

```
100 B = B%
110 X = A% * 1000 + B
```

doesn't work if A% > 32 because the overflow happens before the real variable is met.

```
100 X = A% * 1000.0 + B%
```

doesn't work either.

John Rutherford

How much would you pay to make your Apple II Plus run 3½ times faster?



Only £299

plus VAT

SAVES TIME

Imagine the time, energy, and frustration you could save by boosting your Apple's speed from 1 Mhz to 3.58 Mhz. That's 3½ times faster than normal, making the Apple II Plus arguably the fastest Micro on the market.

How is it possible? It's all down to ACCELERATOR II. This new plug-in board from Pete & Pam Computers contains a 6502C Processor and 64K of memory. The board runs all native Apple II software, including programs written in Applesoft, Integer, Machine Code, Pascal, Apple Fortran 77 and Forth.

Amongst the many thousands who could benefit from ACCELERATOR II are users of Visicalc, DB Master, Micro Modeller, Multiplan Tabs, and Systematics.

SUPER FAST

In November 1982, PCW published a bumper round up of all the Benchmark Timings since PCW began. The Olivetti M20 came out top of the 'league' with an average Benchmark timing of 11.5. Running the same Benchmark test programs, the Apple II Plus with Accelerator II averages a timing of 8.58 – that's an incredible 25% faster than the Olivetti M20.

We have reproduced some of PCW's findings, incorporating Benchmark Timings for the Apple II Plus with Accelerator II.

Machine	BM1	BM2	BM3	BM4	BM5	BM6	BM7	BM8	Average
Apple II Plus with Accelerator II	0.3	2.4	4.5	5.0	5.5	8.2	12.9	2.98	8.6
Olivetti M20	1.3	4.0	8.1	8.5	9.6	17.4	26.7	1.6	11.5
IBM Personal Computer	1.5	5.2	12.1	12.6	13.6	23.5	37.4	3.5	17.6
Osborne 01	1.4	4.4	11.7	11.6	12.3	21.9	34.9	6.1	19.9
Intertec Superbrain	1.6	5.2	14.0	13.9	14.8	26.3	43.2	5.6	21.9
Apple III	1.7	7.2	13.5	14.5	16.0	27.0	42.5	7.5	24.7
ACT Sirius 1	2.0	7.4	17.0	17.5	19.8	35.4	55.9	4.3	24.8
Xerox 820	1.7	5.5	15.5	15.1	16.2	28.9	46.1	8.0	26.1
Apple II	1.3	8.5	16.0	17.8	19.1	28.6	44.8	10.7	30.4
Commodore CBM 8032	1.7	10.0	18.4	20.3	21.9	32.4	51.0	11.9	34.3

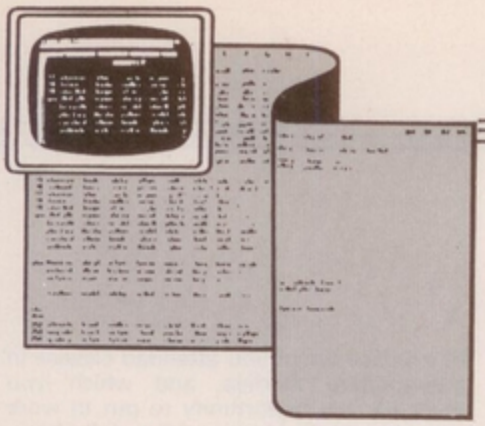
So don't wait – start to save time now. Contact your local dealer, or call us on (0706) 212321, or, in London on 01-769 1022.
A faster, easier computing life is on its way.

– AVAILABLE NOW FROM –

Pete & Pam Computers

Head Office:
NEW HALL HEY ROAD,
Rossendale, Lancs. BB4 6JG
Tel: Ross. (0706) 212321 & 227011
Telex: 635740 PETPAM G

London Office:
103-5 BLEGBOROUGH RD.
London, SW16 6DL
Tel: 01-769 1022/3/4
Telex: 923070 PPCOMP G



The economics of using electronic worksheets

By NICK LEVY
Principal,
Interface Management

THE use of a mouse to manipulate the Lisa computer reminds me of the late Marshall McLuhan who said that we are living in an age where reality is becoming stranger than fiction.

Another shrewd observation by McLuhan concerned those "labour saving" devices such as washing machines and vacuum cleaners. He noted that instead of saving work, these devices permit everybody to do his or her own work. What at the beginning of the century was delegated to servants and housemaids, we now do by ourselves.

Isn't the same phenomenon evolving today with the advent of the personal computer? Every day more and more business executives, who were too shy to use the computer (in order not to be made to look like typists) are now getting their hands on a computer and are performing tasks which up to now they could only have carried out with the help, or otherwise, of programmers, system analysts and other computer specialists. I am only referring, of course, to managers coming to grips with those computer applications which could help them make better business decisions, like business modelling or network analysis, not to computer applications of a transactional nature such as invoicing or payroll systems.

The day is fast approaching when no manager will want to be seen without at least one business computer or a terminal on his desk – one which will not be there just for show, looking up Prestel or searching through masses of unsorted, internally-generated management information.

Every manager using these computers will have to be his own system analyst and programmer and operator. Fortunately however, managers will not have to learn any of the languages used to program computers. What they will need to learn is how to make the best use of at least one package from each of the following application areas – business modelling (a must), graphic packages (optional), word processing (useful), statistical packages (desirable), a data base (essential) and network analysis (optional).

At present managers learning how to use these packages are faced with a Catch-22 type situation. Take, for example, Visicalc, described as the greatest labour saving device since the invention of sliced bread. Learning Visicalc is really a luxury that can only be afforded by managers with time to spare (ask any business executive aspiring to become a serious VC user). Do not kid yourself that Visicalc or Supercalc or even Multiplan are going to save you time. The time spent learning to make the best use of these packages, as well as the time needed to spend on reviewing, redeveloping and expanding existing models, will be longer than the time saved in using the packages to perform quickly complex sets of thousands of calculations.

So what are the economics of using such electronic work sheets? Their real benefit is that they will enable you to apply, in the interest of better decision making, those analytical management techniques which you only carried out as

	A	B	C	D	E	F	G	H	I	J
1				JAN	FEB	MAR	APR	MAY	JUN	JUL
2	OVERHEAD BUDGET:			BUDG	BUDG	BUDG	BUDG	BUDG	BUDG	BUDG
3										
4	VAR.O/H PRODUCTION									
5	Holiday Pay					1500	1500			
6	Nat.Health&Insurance			440	440	550	440	440	550	440
7	Consumable Stores			644	560	616	588	644	588	616
8	Electricity And Gas				2000			2000		
9	Insurance					500			500	
10	Repairs			828	720	792	756	828	756	792
11										
12	VAR.O/H SALES									
13	Sales Salaries			2000	2000	2000	2000	2000	2000	2000
14	Travelling expenses			598	520	572	546	598	546	572
15	Car Expenses			414	360	396	378	414	378	396
16	Deprec.On Cars									
17	Advertising			460	400	440	420	460	420	440
18	Packing Material			322	280	308	294	322	294	308
19	Carriage			874	760	836	798	874	798	836
20	Postage			552	480	528	504	552	504	528
21										
22	FIX.O/H PRODUCTION									
23	Indirect Wages			1800	1800	2250	1800	1800	2250	1800
24	Rent And Rates					9000				
25	Depreciation									
26										
27	FIX.O/H ADMIN.									
28	Admin. Salaries			2250	2250	2250	2250	2250	2250	2250
29	Pension			188	187	188	187	188	187	188
30	Audit						500			
31	Bank Interest&Charges								3750	
32	Stationery			80	80	90	80	80	90	80
33	Telephone			375			375			375
34										
35	TOTALS:									
36	VAR.O/H PRODUCTION			1912	3720	3958	3284	3912	2394	1848
37	VAR.O/H SALES			5220	4800	5080	4940	5220	4940	5080
38	FIX.O/H PRODUCTION			1800	1800	11250	1800	1800	2250	1800
39	FIX.O/H ADMIN.			2893	2517	2528	3392	2518	6277	2893
40										
41	TOTAL OVERHEADS			11825	12837	22816	13416	13450	15861	11621
42										
43	ADD. INFORMATION:									
44	Sales			46000	40000	44000	42000	46000	42000	44000
45	Direct Labour			11500	10000	11000	10550	11500	10500	11000
46	Direct Material			13800	12000	13200	12600	13800	12600	13200
47										
48	CONTRIBUTION TO O/H			20700	18000	19800	18850	20700	18900	19800

Exhibit I

	A	B	C	D	E	F	G	H	I	J
51				JAN	FEB	MAR	APR	MAY	JUN	JUL
52	ACTUAL OVERHEADS			ACTUAL	ACTUAL	ACTUAL	ACTUAL	ACTUAL	ACTUAL	ACTUAL
53	----------			------	------	------	------	------	------	------
54	VAR.O/H PRODUCTION									
55	Holiday Pay					1500	1720			
56	Nat.Health&Insurance			450	450	520	450	450	540	
57	Consumable Stores			650	670	620	600	620	560	
58	Electricity And Gas				2250			2200		
59	Insurance					500			550	
60	Repairs			850	850	795	740	790	800	
61										
62	VAR.O/H SALES			------	------	------	------	------	------	------
63	Sales Salaries			1900	1850	1950	1875	1940	1750	
64	Travelling expenses			610	590	580	578	610	480	
65	Car Expenses			400	467	412	395	410	330	
66	Deprec.On Cars									
67	Advertising			500	475	440	450	420	500	
68	Packing Material			330	334	310	300	350	280	
69	Carriage			860	851	835	800	869	760	
70	Postage			575	541	503	480	567	500	
71										
72	FIX.O/H PRODUCTION			------	------	------	------	------	------	------
73	Indirect Wages			1890	1890	2300	1911	1880	2250	
74	Rent And Rates					9000				
75	Depreciation									
76										
77	FIX.O/H ADMIN.			------	------	------	------	------	------	------
78	Admin. Salaries			2250	2300	2300	2400	2250	2250	
79	Pension			188	187	188	187	188	187	
80	Audit						750			
81	Bank Interest&Charges								4000	
82	Stationery			95	90	90	93	90	100	
83	Telephone			450			420			
84				------	------	------	------	------	------	------
85	TOTALS:									
86	VAR.O/H PRODUCTION			1950	4220	3935	3510	4060	2450	0
87	VAR.O/H SALES			5175	5108	5030	4878	5166	4600	0
88	FIX.O/H PRODUCTION			1890	1890	11300	1911	1880	2250	0
89	FIX.O/H ADMIN.			2983	2577	2578	3850	2528	6537	0
90				------	------	------	------	------	------	------
91	TOTAL OVERHEADS			11998	13795	22843	14149	13634	15837	0
92				======	======	======	======	======	======	======
93	ADD.INFORMATION:									
94	Sales			47500	41500	44500	43870	45600	40000	
95	Direct Labour			12000	10250	11200	11100	10750	10000	
96	Direct Material			14500	12500	13200	13450	13560	12000	
97				------	------	------	------	------	------	------
98	CONTRIBUTION TO O/H			21000	18750	20100	19320	21290	18000	0
99				======	======	======	======	======	======	======

Exhibit II

	A	B	C	D	E	F	G
100				CURRENT PERIOD:			
101							
102				MAR	MAR	VARIANCE	
103	VARIANCES ANALYSIS:			BUDG.	ACTUAL	AMOUNT	%
104	----------			-----	------	-------	---------
105	VAR.O/H PRODUCTION						
106	Holiday Pay			1500	1500	0	0.00%
107	Nat.Health&Insurance			550	520	(30)	-5.45%
108	Consumable Stores			616	620	4	0.65%
109	Electricity And Gas			0	0	0	0.00%
110	Insurance			500	500		0.00%
111	Repairs			792	795	3	0.38%
112							
113	VAR.O/H SALES			-----	------	-------	---------
114	Sales Salaries			2000	1950	(50)	-2.50%
115	Travelling expenses			572	580	8	1.40%
116	Car Expenses			396	412	16	4.04%
117	Deprec.On Cars			0	0	0	0.00%
118	Advertising			440	440		0.00%
119	Packing Material			308	310	2	0.65%
120	Carriage			836	835	(1)	-0.12%
121	Postage			528	503	(25)	-4.73%
122							
123	FIX.O/H PRODUCTION			-----	------	-------	---------
124	Indirect Wages			2250	2300	50	2.22%
125	Rent And Rates			9000	9000	0	0.00%
126	Depreciation			0	0		0.00%
127							
128	FIX.O/H ADMIN.			-----	------	-------	---------
129	Admin. Salaries			2250	2300	50	2.22%
130	Pension			188	188	0	0.00%
131	Audit			0	0		0.00%
132	Bank Interest&Charges			0	0		0.00%
133	Stationery			90	90		0.00%
134	Telephone			0	0		0.00%
135				-----	------	-------	---------
136	TOTALS:						
137	VAR.O/H PRODUCTION			3958	3935	(23)	-0.58%
138	VAR.O/H SALES			5080	5030	(50)	-0.98%
139	FIX.O/H PRODUCTION			11250	11300	50	0.44%
140	FIX.O/H ADMIN.			2528	2578	50	1.98%
141				-----	------	-------	---------
142	TOTAL OVERHEADS			22816	22843	27	0.12%
143				=====	======	=======	=========
144	ADD.INFORMATION:						
145	Sales			44000	44500	500	1.14%
146	Direct Labour			11000	11200	200	1.82%
147	Direct Material			13200	13200	0	0.00%
148				-----	------	-------	---------
149	CONTRIBUTION TO O/H			19800	20100	300	1.52%
150	==========			=====	======	=======	=========
151							
152	NOTE:						
153	(1) VARIANCES=ACTUAL-BUDGET						
154	(2) THE % VAR.RELATES TO BUGET						
155	----------						

Exhibit III

an exercise when you attended classes in management studies, and which you never had an opportunity to put to work once you returned to your firm full of inspiration and new ideas.

So this month we shall examine another datagramming application which, generally speaking, will show you how it can help make better use of Visicalc, and in particular will help expedite in a unique way the process of making periodic comparisons between budgeted figures and actual results.

Exhibit I is an overhead budget. The only rows containing calculations are 36, 37, 38, 39, 41 and 48, as well as the whole of columns P and Q. Each of these rows (from Column D to Column O) is a straightforward self explanatory @SUM (range) computation, except row 48 which is the result of deducting rows 45 and 46 from row 44. Each entry in Column P shows the sum total of the preceeding 12 months, and each entry in column Q shows what percentage of the company's gross profit goes towards the payment of each of the overhead items. In other words, column Q expresses every entry in column P as a percentage of cell P48.

The last statement requires further explanation. The company's gross profits, or margin, consist of sales less direct labour and direct material (Row 44 less Row 45 and Row 46, with the results appearing in Row 48). The company's overheads are financed by contributions from these gross profits, hence the description of Row 48 is "Contribution to O/H". As you can see from cell Q41, over 85 per cent of the company's gross profit has to be used to pay for its overheads.

Preparing an overhead budget similar to Exhibit I is not an easy task. For example, it would be impossible in practice to enter indirect production wages (Row 23) direct into the O/H budget (unless your budget is based entirely on broad guesstimates). You will probably need to have about 20 separate Visicalc files, one for each of the various overhead headings shown in Exhibit I, and transfer the sum totals from each of these files to the O/H budget via DIF file. *(For an explanation of what DIF Files are all about – see Windfall, February 1983, page 35.)*

Having produced your O/H budget, what's the next step? Most tutorials on financial planning packages end the main part of their tutorial after showing you how you can use their package to prepare your own budget. Then they leave you to your own devices.

Now your objective when preparing a budget is probably to compare it with the actual results, and to end up with a financial statement which looks like Exhibit III, which contains two different variances analysis reports.

The first analyses the variances between the O/H budget for March and the actual O/H expenditure during that month. The second analyses the O/H

variances from the beginning of the year to date, i.e. from the beginning of January to the end of March.

So how can you progress from Exhibit I to Exhibit III and produce similar reports for every month of the year? *(After all what is the purpose of preparing an annual budget as in Exhibit I, if you cannot monitor the results at monthly intervals as shown in Exhibit III?)*

There is no reason why you should not also use the same spreadsheet layout used for consolidating the O/H budget (Exhibit I) for recording the consolidated actual overhead expenditure. Exhibit II is a Visicalc template for recording the actual O/H expenditure.

This exhibit was produced by replicating the whole of Exhibit I (column by column) and then making the following alterations:

(a) The word BUDG in Row 52 was replaced with the word ACTUAL.

(b) All the data from Row 56 to Row 83, between columns D and O was deleted. The form was then ready to accept entries showing the actual expenditure on overheads. When deleting the data, be careful not to touch any of the rows in columns P and Q. As you can see, the actual overheads for the first six months of the year have already been recorded.

Note from the rows and column numbers of Exhibits I, II and III that all three are on the same file. It uses 28k of memory, so you will be only able to use this model on your computer if it has a 64k configuration.

The Visicalc program occupies 30k, which would leave you with only 18k of user memory on a 48k machine, which is not enough for this month's exercise.

Originally I had the O/H budget and the actual O/H on separate VC files so that the exercise could have been performed on a 48k computer. However the VC technique used to perform monthly and year to date variances analysis on data kept in two different files was too complicated to be clearly described in writing without resorting to a live demonstration, so I combined the three files into one.

The next thing we are going to look at is how to use datagrammes to extract information from Exhibits I and II in order to produce Exhibit III. *(Datagramming was discussed in this column in the October 1982 issue of Windfall.)*

Exhibit IV shows the datagramme used to produce Columns D, E, H and I in Exhibit III. The actual datagramme starts from line No. 5. In plain words, that line reads: "Go to cell F1, press RETURN (the colon after F1 means RETURN), REPLICATE (cell F1) from D102 to E102".

Line 6 instructs the VC program to replicate cell F1 from H102 to I102.

Line 7 reads: "Go to cell D106, RETURN, and copy into that cell the value from cell F5".

Line 8 instructs the VC programme to copy cell F6 into cell F107, and so on.

Line 61 instructs the VC program to add up the values from cells D5, E5 and F5 and put the total in cell H106.

Line 62 contains the instructions to add up the values from D6 to F6 and enter the

→

BOOK

Assembly Language Programming for the Apple II, by Robert Mottola, Osborne/ McGraw-Hill (£10).

Assembly language programming – in easy-to-take doses

By BILL ALLEN

THERE can be no doubt that a good working knowledge of 6502 assembly language programming is an extremely useful acquisition for the serious computerist.

A book of exactly this title has, of course, been available for quite some time, also published by Osborne/ McGraw-Hill, and witten by the amazing Lance Leventhal.

An appealing feature of Leventhal's books is that for each microprocessor (6800, 6502, 8080, Z80, 6809, Z8000, 68000), he adopts the same style, and uses the same illustrative examples.

Also, his books are exceptionally good value for money, costing around £12 for 1,000 pages of very useful reference material.

However, what Leventhal's books do not set out to do is lead the reader by the hand through the processes involved in entering and running assembly language.

To do this effectively, one has to narrow the scope down to a single computer and, preferably, to the use of a single assembler.

This is precisely what Robert Mottola appears to have done. He deals exclusively with the Apple II, and concentrates on the use of Lazer Systems' excellent Lisa assembler.

The book will also serve as a useful guide for the users of other assemblers, particularly since the author thoughtfully provides an appendix with a comparison between the Lisa, S/C and Applesoft Tool Kit assemblers. If used in conjunction with the manual for any currently available 6502 assembler, it still provides a simple, systematic tutorial in this very important subject.

After introducing number systems and explaining the principles of assembly language, the author deals in minute detail with the subject of entering and editing code.

To illustrate this, he first uses a simple program which homes the cursor, clears the screen and beeps the speaker twice (all, of course, using the Apple monitor subroutines). He then goes on to explain the assembly process itself, the use of labels, and how to run the program.

By now, although we know how to enter and run assembly language programs, the programming principles have not yet been covered. He deals with the concept of registers and then, in the next eight chapters, systematically introduces the 6502 instruction set and addressing modes.

The NOP and BRK instructions are briefly explained with reference to debugging, and the final chapter outlines the use of the stack. The book contains six appendices, including the obligatory 6502 instructions set.

Clearly, with only 143 pages, this book is expensive. Neither does it provide an in-depth coverage of its subject. However, as a tutorial it is successful, and the author's style of presenting the information in small doses works well (chapter seven is only two pages long!).

Using this book alone would not make the reader an expert assembly language programmer but, with the back-up of Leventhal's book, progress should be rapid.

A long-awaited complement to existing books on this subject, this book is recommended for beginners, in spite of its high price.

VISICALC

total in cell H107, and so on.

Line 114 removes any fixed titles (for an explanation, see TITLE command in your VC manual).

Line 115 brings cell A101 to the top left hand corner of your screen, and line 116 fixes the top four rows of Exhibit III so that they remain in view when you scroll the monitor over the worksheet. Column F in Exhibit III is column E less column D. Column J is column I less column H. Column G is column F expressed as a percentage of column D, and column K is column J expressed as a percentage of column H.

You will have to write a datagramme for every month of the year and save each datagramme in a separate Print File (/PF or /PD). This is not as difficult as it first appears. If you produced a datagramme for March and saved it with /PF or /PD you could then use your March screen entry and edit it (with /E) to produce a datagramme for April.

For example, the entry F1 in lines 5 and 6 (Exhibit IV) becomes G1. The rest of the entries in these two lines remain the same. The +F5 and the +F6 in lines 7 and 8 become +G5 and +G6, and so on. Similarly the F5 and F6 in lines 61 and 62 become G5 and G6. The entry F55 in line 88 becomes G55 etc.

Having /PF the April entry, you can then adapt it on your screen to produce a datagramme for May, again by editing one of the co-ordinates in each line in the April version.

Do NOT attempt to copy this month's datagramme unless you have familiarised yourself with the introductory notes on datagramming in the October 1982 issue of *Windfall* or you have previous experience with Visicalc's auto-EXEC facilities.

While on the subject of datagramming, I want to thank Allan Dubost of Dibden Purlieu in Hampshire for sending me a series of datagrammes which will enable Visicalc users to load VC files from a menu. Not only can his datagrammes provide you with a catalog of the files on any VC data disc, but the loading of any file can be done by keying /SL followed by a single letter, even if the full name of the file actually consists of 30 characters. How does Allan do it? All will be revealed in a month or two.

As some of these Visicalc articles become more and more sophisticated and advanced, I shall, from next month, incorporate into this column a Visicalc corner for beginners. So if you have any problems with replicating, watch this space.

Finally, you may have noticed that Exhibits I, II and III have a new look about them. They were all produced on an Apple II, and yet if you look at Exhibit III you will note variable column widths. Column H for example is 12 characters wide, Column J is 9, and Column K is 10

```
 1    A DATAGRAMME FOR ANALYSING
 2    (A) THE MARCH OVERHEADS.
 3    (B) THE YEAR TO DATE O/H.
 4    -------------------------
 5          )F1:/R:D102.E102
 6          )F1:/R:H102.I102
 7                )D106:+F5
 8                )D107:+F6
 9                )D108:+F7
10                )D109:+F8
11                )D110:+F9
12              )D111:+F10
13              )D114:+F13
14              )D115:+F14
15              )D116:+F15
16              )D117:+F16
17              )D118:+F17
18              )D119:+F18
19              )D120:+F19
20              )D121:+F20
21              )D124:+F23
22              )D125:+F24
23              )D126:+F25
24              )D129:+F28
25              )D130:+F29
26              )D131:+F30
27              )D132:+F31
28              )D133:+F32
29              )D134:+F33
30              )D145:+F44
31              )D146:+F45
32              )D147:+F46
33
34              )E106:+F55
35              )E107:+F56
36              )E108:+F57
37              )E109:+F58
38              )E110:+F59
39              )E111:+F60
40              )E114:+F63
41              )E115:+F64
42              )E116:+F65
43              )E117:+F66
44              )E118:+F67
45              )E119:+F68
46              )E120:+F69
47              )E121:+F70
48              )E124:+F73
49              )E125:+F74
50              )E126:+F75
51              )E129:+F78
52              )E130:+F79
53              )E131:+F80
54              )E132:+F81
55              )E133:+F82
56              )E134:+F83
57              )E145:+F94
58              )E146:+F95
59              )E147:+F96
60

61          )H106:@SUM(D5.F5)
62          )H107:@SUM(D6.F6)
63          )H108:@SUM(D7.F7)
64          )H109:@SUM(D8.F8)
65          )H110:@SUM(D9.F9)
66        )H111:@SUM(D10.F10)
67        )H114:@SUM(D13.F13)
68        )H115:@SUM(D14.F14)
69        )H116:@SUM(D15.F15)
70        )H117:@SUM(D16.F16)
71        )H118:@SUM(D17.F17)
72        )H119:@SUM(D18.F18)
73        )H120:@SUM(D19.F19)
74        )H121:@SUM(D20.F20)
75        )H124:@SUM(D23.F23)
76        )H125:@SUM(D24.F24)
77        )H126:@SUM(D25.F25)
78        )H129:@SUM(D28.F28)
79        )H130:@SUM(D29.F29)
80        )H131:@SUM(D30.F30)
81        )H132:@SUM(D31.F31)
82        )H133:@SUM(D32.F32)
83        )H134:@SUM(D33.F33)
84        )H145:@SUM(D44.F44)
85        )H146:@SUM(D45.F45)
86        )H147:@SUM(D46.F46)
87
88        )I106:@SUM(D55.F55)
89        )I107:@SUM(D56.F56)
90        )I108:@SUM(D57.F57)
91        )I109:@SUM(D58.F58)
92        )I110:@SUM(D59.F59)
93        )I111:@SUM(D60.F60)
94        )I114:@SUM(D63.F63)
95        )I115:@SUM(D64.F64)
96        )I116:@SUM(D65.F65)
97        )I117:@SUM(D66.F66)
98        )I118:@SUM(D67.F67)
99        )I119:@SUM(D68.F68)
100       )I120:@SUM(D69.F69)
101       )I121:@SUM(D70.F70)
102       )I124:@SUM(D73.F73)
103       )I125:@SUM(D74.F74)
104       )I126:@SUM(D75.F75)
105       )I129:@SUM(D78.F78)
106       )I130:@SUM(D79.F79)
107       )I131:@SUM(D80.F80)
108       )I132:@SUM(D81.F81)
109       )I133:@SUM(D82.F82)
110       )I134:@SUM(D83.F83)
111       )I145:@SUM(D94.F94)
112       )I146:@SUM(D95.F95)
113       )I147:@SUM(D96.F96)
114                      /TN
115                   /X)A101
116                 )A104:/TH
```

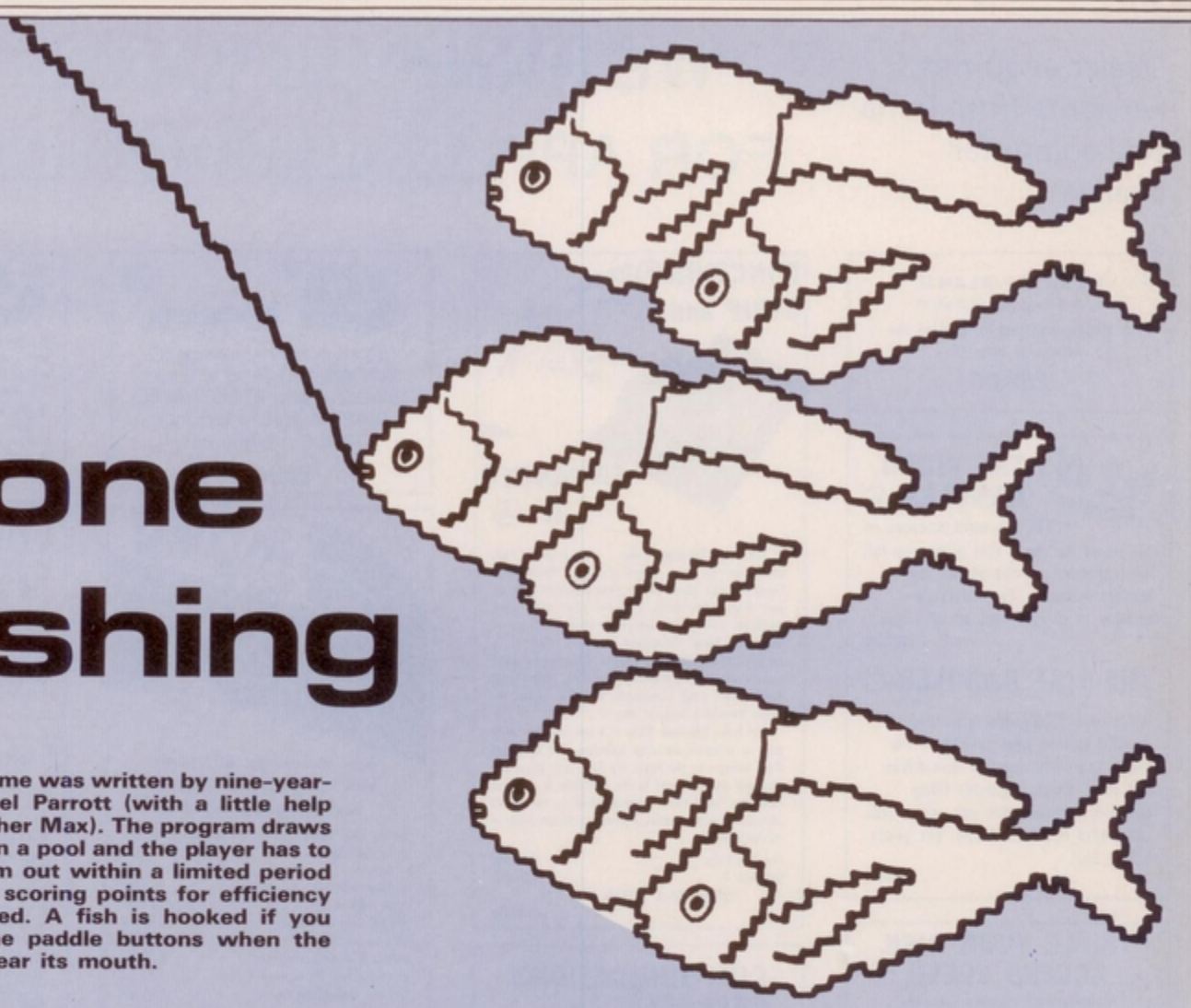
Exhibit IV

characters wide. Negative figures in Columns F and J are shown in brackets, and Columns G and K show the % appearing as part of the same cell in which the numbers appear. How was it all done?

A couple of days before the press date for this article I received from Vergecourt a preview demo disc marked "Super Expander 80.2" to go with the Ramex 128 RAM card. The disc contains about 20 new Visicalc commands and other features, some of which, as you can see, I have managed to incorporate into this month's exhibits.

I hope to be able to tell you more about this product in a later article. It is due on the market soon and existing users of the Super Expander 80 are to be given an option to upgrade their disc to the new version.

Gone Fishing



THIS game was written by nine-year-old Isabel Parrott (with a little help from father Max). The program draws 10 fish in a pool and the player has to fish them out within a limited period of time, scoring points for efficiency and speed. A fish is hooked if you press the paddle buttons when the line is near its mouth.

```
10  POKE 232,0: POKE 233,3: GOTO
    450
20  REM

 SUBROUTINE TO DRAW FISH

30  FOR I = 1 TO 10: IF FISH(I) =
    0 THEN  GOTO 60
40  IF I < 6 THEN  DRAW 1 AT FISH
    (I),180
50  IF I > 5 THEN  DRAW 1 AT FISH
    (I),155
60  NEXT
70  REM

SUBROUTINE TO PICK X,Y FOR END OF
     LINE

80  HPLOT 0,135 TO 279,135: RETURN

90 X =  INT (279 *  RND (1)):Y =
     INT (158 + 33 *  RND (1)): RETURN
100  ROT= 0: SCALE= 1: HCOLOR= 3
110  HGR2
120 N = 0:C = 0:S = 0
130  FOR I = 1 TO 5
140 FISH(I) = I * 40
150  NEXT
160  FOR I = 1 TO 5
170 FISH(I + 5) = 20 + I * 40
180  NEXT
190  GOSUB 30
200  HPLOT 0,135 TO 279,135
210 X1 = 30:Y1 = 20
220  HPLOT 0,130 TO X1,Y1
230  HCOLOR= 3: GOSUB 90
240  HPLOT X1,Y1 TO X,Y
250  FOR I = 1 TO 20
260  IF  PEEK ( - 16286) > 127 OR
     PEEK ( - 16287) > 127 THEN
     S = S + 1: GOSUB 340
270  NEXT
280 N = N + 1: IF N > 100 THEN  GOTO
     550
290  FOR I = 1 TO 10: IF FISH(I) <
     > 0 THEN  GOTO 310
300  NEXT : GOTO 550
310  HCOLOR= 0: HPLOT X1,Y1 TO X,
     Y
320  HCOLOR= 3: GOSUB 30
330  GOTO 230
340  HCOLOR= 0: IF Y > 148 AND Y <
     162 THEN  GOTO 390
350  IF Y > 173 AND Y < 187 THEN
     GOTO 370
360  GOTO 440
370  FOR G = 1 TO 5: IF X > FISH(
     G) - 7 AND X < FISH(G) + 7 THEN
     GOTO 410
380  NEXT : GOTO 440
390  FOR G = 6 TO 10: IF X > FISH
     (G) - 7 AND X < FISH(G) + 7 THEN
     GOTO 420
400  NEXT : GOTO 440
410  DRAW 1 AT FISH(G),180: GOTO
     430
420  DRAW 1 AT FISH(G),155
430 FISH(G) = 0:C = C + 1
440  RETURN
450  TEXT : HOME : HTAB 16: INVERSE
     : PRINT "FISHING": NORMAL : PRINT
     : PRINT : PRINT : PRINT "IN
     THIS GAME YOU ARE "
460  PRINT "TRYING TO FISH 10 FIS
     H OUT "
470  PRINT "OF A POOL.THE IDEA IS
     TO FISH ALL"
480  PRINT "THE FISH OUT OF THE P
     OOL "
490  PRINT "BEFORE THE TIME RUNS
     OUT."
500  PRINT "USE THE BUTTONS TO PI
     CK UP THE "
510  PRINT "FISH WHEN THE LINE IS
      NEAR THE MOUTH"
520  FOR I = 768 TO 837: READ M: POKE
     I,M: NEXT
530  VTAB 23: PRINT "PRESS THE SP
     ACEBAR TO CONTINUE"
540  GET T$: GOTO 100
550  TEXT : HOME : PRINT "IN A 10
     0 CASTS YOU CAUGHT "C" FISH"

560  PRINT : PRINT "YOU JERKED TH
     E LINE "S" TIMES"
570 S = 100 - S + 10 * C
580  PRINT : PRINT : PRINT "YOUR
     SCORE IS "S
590  PRINT : PRINT : PRINT : PRINT
     "THIS IS ":: IF S > 140 THEN
      PRINT "EXCELLENT"
600  IF S > 120 AND S < 141 THEN
      PRINT "VERY GOOD"
610  IF S > 100 AND S < 121 THEN
      PRINT "GOOD"
620  IF S > 60 AND S < 101 THEN  PRINT
     "AVERAGE"
630  IF S < 61 THEN  PRINT "POOR.
      TRY FOOTBALL INSTEAD"
640  VTAB 22: PRINT "DO YOU WANT
     ANOTHER GAME?"
650  INPUT T$
660  IF T$ = "YES" THEN  GOTO 100

670  IF T$ = "NO" THEN  HOME : PRINT
     "GOODBYE": END
680  HTAB 1: GOTO 640
690  DATA 1,1,4,0,39,39,39,39,39,
     39,37,37,37,37,37,37,37,37,4
     5,45,46,53,45,45,46,45,44,44
     ,44,44,44,44,44,44,54,54,54,
     54,54,54,54,54,54,62,60,60,6
     0,60,52,55,55
700  DATA 55,63,62,62,62,62,39,63
     ,63,39,39,37,37,37,37,128,19
     2,32,0
```

Dealer enquiries welcome from bona fide computer dealers

WE HAVE THE LARGEST COM FOR APPLE, IBM PC, HX20 AND

Ⓐ

DESKTOP/PLAN II
from Personal Software
A programming language for financial analysis.
£69.00

NEW THE WORD HANDLER Ⓐ
The only word processor in the world for Apple that gives you full line capability on the screen, no boards necessary. Two character formats to choose from at all times.
£109.00

THE LIST HANDLER Ⓐ
Holds up to 3,000 records so that 24,000 can be kept on-line at the same time with multiple disk-drives. The most simple, versatile filing program available that not only stores and prints lists and labels, but prints letters too!
£79.00

TRIPLE YOUR DISK ACCESS SPEED
No hardware modification required
FastDOS Ⓐ
Fast Disk operating system for Apple II computers
Completely compatible with DOS disks
Loads and saves standard DOS files
Completely compatible with all DOS/APPLESOFT programs that access DOS through standard hooks, including FID and MUFFIN
Executes all standard DOS commands

Comparative timings:	DOS	FDOS
Bloading integer basic	13 sec	3 sec
Cataloging a 12 file disk	2 sec	1 sec
Saving a 10 sector program	6 sec	2 sec
Saving a 100 sector program	34 sec	7 sec
Loading a 100 sector program	24 sec	7 sec

Requires 48K
£19.95

THE WILDCARD Ⓐ
PLUG THIS CARD INTO ANY SLOT AND IT WILL COPY THE PROGRAM RUNNING ONTO A STANDARD DOS DISC
- Works with any RAM card
- Copies any 48K core resident program (6502)
- No parameter list needed – copies without question
- Fast and reliable – any program in less than two minutes
- Copies made with WILDCARD can be copied again and again with standard copy program
- Core program is accessible
- Not slot dependent
- Programs copied can be run without WILDCARD being present
- Copies even the bit map copiers
- Utilities included for the programmer
- Copies most 64K programs

£99.00

FUNCTION STRIP and . . Ⓐ



ENHANCER II Ⓐ

The Videx **Function Strip** adds a whole new dimension to your Enhancer II / Apple II Function Keys. Now you can have dedicated keys for your macro definitions. Program often used word processor commands, words or phrases into your **Function Strip**. Programmers will find it a significant aid to be able to define often used commands and statements. VisiCalc users can define often used commands and file names for single keystroke ease of use.

The Videx **Function Strip** is a low cost, versatile strip of pressure sensitive switches. The **Function Strip** adheres to the Apple II's lid – just above the keyboard and connects to the Enhancer II's keypad connector port. The **Function Strip** is completely compatible with keypads connecting to the Apple II motherboard.

Function Strip	£49.50
Enhancer II	£89.00
OR . . . BOTH FOR A SPECIAL PRICE OF	£135.00

COMMUNICATIONS PACKAGES



CONVERT YOUR APPLE INTO A VT100 TERMINAL USING ASCII EXPRESS "THE PROFESSIONAL"

WE USE IT OURSELVES!

ASC II EXPRESS – THE PROFESSIONAL Ⓐ
The finest, most complete, communication package you can buy! For operation under native Apple DOS 3.3 in 48k and 64k systems.
£99.00

ZENITH 12" GREEN SCREEN MONITORS
Special Offer
NOW ONLY **£85**

THE GIBSON LPS II LIGHT PEN Ⓐ
If you want to create graphics and want to stay away from using paddles, joysticks, the keyboard, or expensive graphics tablets – then the LPS II is for you.
£249

timekit Ⓐ
The amazingly compact MICROWATCH real time clockcard and ELECTRONIC DIARY software for your APPLE II computer.
£59.00

Ⓐ **SATURN 128K**



Now you can get 80 column VisiCalc display on Videoterm, Smarterm and Sup-R-Term

Saturn 128K Card	£359.00
Saturn 32K Card	£149.00
VC Expand	£49.00
VC Expand 80	£59.00
Videx Videoterm	£199.00
Soft 80 Column Switch	£21.95
Hard Switch Plate	£13.50
Inverse ROM (Recommended)	£18.95
Videx Visicalc 80 Column Preboot Disk (no memory expansion)	£34.95

A new utility will be out soon enabling you to run Applesoft programs up to approx 160K in size.

MACHINE CARE DUST COVERS

Apple II	£6.95
Apple & 2 Discs	£8.95
Apple & 12" Monitor	£8.95
Apple 2 KD&12" Monitor	£9.95
Apple 2 DK&9" Monitor	£8.95
Single Disc	£3.45
2 Stacked Discs	£4.45
9" Monitor	£5.95
Epson MX80/70	£5.95
Paper Tiger 445/80	£7.45
MX100	£9.95
Qume 5 W/Tractor	£10.95
Nec 12" Monitor	£7.45
Hitachi 12" Monitor	£7.45
Decca RGB Monitor	£9.95
Sirius Keyboard	£5.95
Sirius Proc & Monitor	£10.95
Prism Printer 560	£8.45
Anadex 9000 Series	£6.95
BBC Computer	£6.95
IBM PC Monitor & Cover	£9.95
IBM PC Keyboard	£4.95
NEC 8023B-C Printer	£6.45
Pet 4023/8023/8096	£9.45
Pet 4040/8050 Disc	£6.95
9060 Hard Disc	£8.95
Pet 4022P Printer	£5.95
Pet 8023P Printer	£7.45
Pet 8300P Printer	£9.45

HEAD CLEANING
Clean read/write heads the way leading manufacturers recommend 5¼" disc head cleaning kit. **£15.95**

DISCS & DISC BOXES
BASF single sided, single density discs
10 for £17.90 50 for £84.50 100 for £159
Kass-ette storage boxes **£1.95**

Pipe Line
Random Access Printing Buffer

For the first time ever, here is a buffer that not only frees your fast computer from your slow printer but also allows you to rearrange, compose and copy your data on its way to the printer.

- Random Access Printing – stores paragraphs or pictures for printing in any order – any number of times.
- FIFO Printing – conventional first-in first-out operation.
- Compression of data for efficient utilisation of memory space.
- Ability to interrupt long-term buffer operations for straight-thru short-term printing.
- Simple Erase feature to clear buffer.
- Automatic duplication capability.
- Easily expandable, by you, from 8K Bytes to 128K Bytes.

The IS Pipe Line is Universal – it works with any parallel (Centronics – style) computer/printer combination. A special version is available for PKASO Printer Interfaces.

8K Buffer £189.00
128K Buffer £359.00

WESPER MICROSYSTEMS
WIZARD Peripheral Cards Ⓔ

WIZARD-EBI
64K Buffer for Epson Printers
With a WIZARD-EBI, you will never again have to wait for your printer to finish printing a job before you can start your next project. That's because the WIZARD-EBI allows you to use your computer on a new task during the time the printer is printing the previous one. The WIZARD-EBI can buffer 8K, 16K, 32K, or 64K characters depending on the number of RAM chips plugged into the board. The unit can be purchased with any buffer size and expanded later by simply plugging RAM chips into the empty sockets on the card.
£109



SMITH CORONA TP-I
Electronic Text Printer
- LOW COST DAISY WHEEL PRINTER
- MICROPROCESSOR ELECTRONICS
- SERIAL OF PARALLEL INTERFACES

£485

A/PC
ALPHA
The Apple-IBM Connection
Transfers any file back and forth!

CONNECT Apples to IBMs, Apples to Apples, or IBMs to IBMs. Transfer information from any file thousands of miles – in minutes.

£149

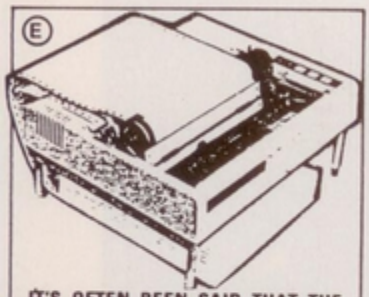
INDEX :

Ⓐ FOR APPLE COMPUTERS

BINED RANGE OF PRODUCTS
C/PM COMPUTERS IN THE UK!

Goods listed in this advertisement are available from our dealers throughout Europe

Ⓔ



IT'S OFTEN BEEN SAID THAT THE SIMPLEST IDEAS ARE THE BEST – AND JUST LOOK AT THIS ONE FOR PAPER STORAGE.

stilts

Pete & Pam Computer's Stilts are four legs which can be installed on to your Epson MX80 in seconds – giving you room for 3 inches of paper.

SPECIALLY REDUCED PRICE **£3.95**

A/PC

d BASE II

The most powerful, easiest to use micro data base management system. Don't just take our word for it – read this review from "Info World". "Overall, I would rank dBASE II as excellent. It is fast, powerful and flexible, and it allows applications to be programmed far more quickly and easily than does BASIC or Pascal. It is hard for me to imagine any kind of small business application for which I would prefer one of the traditional languages over dBASE II."

You'll wonder how you managed without it.

d BASE II **£399.00**
Requires Microsoft Z-80 Softcard **£239.00**

dBASE II Utilities

dUTIL
The dBASE II Utility Program

dUTIL is Fox & Geller's utility program for dBASE II. dUTIL decreases the running time of dBASE II command files. dUTIL combines your command files automatically to produce a faster running time.

£89.00

QUICKCODE
The dBASE II Program Generator

Quickcode writes concise programs to set up and maintain any type of database. Run them as is, or customise them in seconds. You still have all the power of dBASE II and there is no programming required. All you have to do is draw your data entry form on the screen and you're in business.

£249.00

AUTOCODE 1

Autocode 1 – is extremely simple to use, a user with no programming experience and no knowledge of dBase II can produce programs within a hour or so of introduction to the system, since Autocode 1 – sets an automatic file maintenance and a standard reporting facility.

£120.00

dGRAPH
The dBASE II Graphics System

Now you can combine database and graphics. With dGRAPH by far the easiest to use graphics package in existence. Just press one key and you've got your graph.
And what graphs! Sales by month. Expense budget by division. This year versus last year. And each one can be a pie chart bar graph or line graph. It's up to you.
Advanced features make dGRAPH as powerful as it is easy. Features like autoGRAPH which will automatically load dBASE II data, compute scales, draw grid lines, and label charts. Then there's automatic shading and overlay graphs.
dGRAPH draws graphs on Epson, Okidata, and a growing list of other popular printers.

£249.00

Ⓔ FOR EPSON PRINTERS

ANNOUNCING...

Sprinter

RING US TODAY– GET YOUR PRINTER TOMORROW!

We stock the following printers:

Tec/Itoh F10/40cps	£1,285
Tech/Itoh F10/50cps	£1,675
Epson MX100 F/T III	£499
Epson MX827 Graphics Ptr	£369
Epson MX80 F/T III	£389
Epson MX80 T III	£349
Epson MX82 F/T Graphics Ptr	£409
Epson FX80	£438
NEC 8023B Dot Matrix	£399
OKI Microline 80	£199
OKI Microline 82A	£349
OKI Microline 83A	£499
OKI Microline 84 Parallel	£799
OKI Microline 84 H.S. Serial	£891
Olympia ESW3 with KB	£1,098
Olympia ESW102 (RO)	£836
Smith Corona TP1 D/W Serial	£485
Smith Corona TP1 D/W Parallel	£485

Dealer prices available on request

BOOKS

SEND NOW FOR OUR NEW CATALOGUE OF OVER 600 COMPUTER RELATED BOOKS

Our well equipped
SERVICE & REPAIR DEPARTMENTS

IN ROSSENDALE & LONDON ARE NOW AVAILABLE FOR REPAIRS ON ANYONE'S APPLE OR IBM PC

Rates are very reasonable

£10 1st ½ hour, £7.50 per each subsequent ½ hour in Rossendale

£12 per 1st ½ hour, £9 per each subsequent ½ hour in London.

Call
STEVE McCLEAN in Rossendale (0706 227011)
or
DAVE MERCER in London (01-769 1022)

P/C FOR THE IBM PC

Ⓐ

We distribute
SYMBIOTIC
HARD DISK DRIVES

5MB	**£1,494**
10.5MB	**£2,130**
21MB	**£2,800**

Please ring for more information and dealer prices

THE PLUG –
cost effective computer care.

A mains borne noise and transient suppression device incorporated within a modified 13 amp plug.

Helps cure unexplained software errors, and apparently intermittant hardware malfunctions.

£12.95

BIG NEWS

WE ARE PLEASED TO ANNOUNCE THAT OUR LONDON OFFICE IS NOW AN AUTHORISED IBM UK PERSONAL COMPUTER DEALER

LOOK AT THESE ITEMS FROM OUR WIDE RANGE OF PRODUCTS FOR THE IBM PC

80 Col Word Process IBM	
Write On for IBM PC	99.00
Easyspeller For IBM	125.00
Easywriter II For IBM	239.00
Volkswriter IBM PC	159.00
Wordstar For IBM	295.00
Mailmerge For IBM	145.00
Superwriter For IBM (Oct 3/8)	249.00
VisiWord for IBM PC	295.00
Mem Exp Cardsb IBM	
64K RAMcard for IBM PC	245.00
256K RAMcard for IBM PC	495.00
192K Ramcard for IBM	287.00
Apparat 64K expandable RAMcard	119.00
16K upgrade for RAMcard	31.00
Vista 576K Maxicard RAMcard	395.00
Multifunction Cards IBM	
Para/RS232/Clock Card For IBM	249.00
Hercules Graphics Card	495.00
Assembly Language Graphics rtn	39.95
Quadboard 256K,Clock & I/O	695.00
Quadboard 64K,Clock & I/O	395.00
Quadboard 128K,Clock & I/O	525.00
Quadboard 192K,Clock & I/O	595.00
6 Function 576K Board for PC	575.00
I/O IBM-Int (2 Ser Para & GM)	195.00
Graphics Hardware Ibm	
Sweet P Plotter for IBM PC	595.00
Versawriter Graph Tab IBM	199.00
Firmware Devel Equip IBM	
Prom Blaster For IBM	159.00

Financial Modelling IBM	
1-2-3 for IBM PC	349.00
Supercalc For IBM	225.00
Business Forcasting Model IBM	88.00
Visicalc 256K For IBM	187.00
Edu Software IBM	
Question	32.95
ATI Power for IBM PC DOS	59.00
THE WORDprocessor BIBLE Tut PC	149.00
PC Tutor	59.00
The Instructor for IBM PC	29.95
Wordtrix for IBM	22.95
Quotrix	22.95
Story Machine for IBM PC	24.95
Facemaker for IBM PC	24.95
Snooper Troops for IBM PC	32.95
Snooper Troops 2 for IBM PC	32.95
Databases & DB Util IBM	
Versaform for IBM PC	295.00
Qbase for IBM PC	139.00
Dbase II For IBM	375.00
Quickcode for dBase 11 IBM	249.00
dUtil for dBase 11 IBM	69.00
dGraph for dBase 11 IBM	249.00
Easyplanner For IBM	125.00
Easyfiler For IBM	259.00
PFS for IBM	84.00
PFS Report for IBM	64.00
DB Master for IBM PC	349.00
Data Reporter for IBM PC	195.00
Report Writer for IBM PC	79.00
File-Fax for IBM PC	139.00
Visidex For IBM	187.00
Visifile For IBM	230.00

Pete & Pam Computers



forcapple entry

Mail Order & Distribution:
New Hall Hey Road, Rossendale, Lancs., BB4 6JG
Phones: (0706) 227011 & 212321
Telex: 635740 Petpam G.

Norwegian Agent:
The Norwegian Software House
Address Okernveien 145
Oslo 5
Telephone 47 2 64 55 77

London Retail:
103-5 Blegborough Road, London, SW16 6DL
Phones: 01-769 1022/3/4
Telex: 923070 PPCOMP G

Prices do not include VAT please add 15% to your remittance
Postage and Packing FREE



–IT'S LIGHT YEARS AHEAD

Set your sights on nothing less than Ormbeta, the most powerful and versatile DATABASE SYSTEM you could have in your armoury.

It's written in PASCAL . . . the language of the future for business and scientific applications, and business accounting packages are already available from over 150 U.K. dealers for every size of company, from corner shops to multinationals.

The specially developed 'p' operating system enables Ormbeta to be used with a galaxy of popular microcomputer hardware . . . IBM, Osborne, Apple, Xerox, Sirius, Victor, Sage – Virtually any micro on the market!

As for our recommendations and approval? Apple have gone a stage further by actually installing our new Beta 'Turbo' System at their European Headquarters!

Naturally Ormbeta is constantly being updated to keep us ahead of the field, but examples of typical packages already available include Beta Database, Sales/Purchase/Nominal Ledgers, Payroll and Stock Control. Exclusive packages can also be prepared, such as those we've developed for Estate Agents, Catering Management, Club Membership and Golf Handicapping.

Why not take your first step in the fight towards greater efficiency by contacting us for details of your nearest Ormbeta Dealer?

ORMSKIRK COMPUTER SERVICES LTD.

14 Aughton Street,
Ormskirk, Lancashire L39 3BW
Telex: 627110 & 628702
CHACOM G Prefix 'ORMBETA'
ORMSKIRK (0695) 77043

Ormbeta Software

Please send me further details ☐
OR I am interested in becoming an Ormbeta Dealer ☐

Name _____
Address _____

Tel: _____

WF.4.

Going fine, now it's not so dusty..

AN Apple is playing a big part in keeping 400 lines of pet and animal food on the market.

It was bought by dog food wholesalers John and Pam Noel and Mike Richardson, who currently employ 13 staff at their company Peak Dog Foods.

"We were mainly interested in seeing whether a personal computer could save us time in doing invoices," says Mrs Noel.

"We were having to manually produce about 30 a day, each with 20 to 30 items on them. Then we would have to cross check them to see if everything was correct – we couldn't afford mistakes. It was really a full-time job for two people."

The company bought an Apple in April 1980. "The decision took us a while," remembers John Noel, "but we chose Apple because it was a well-known name and it seemed to have a lot of good business software available for it.

"It was also well within our price range, which was a big advantage!

"The system, bought from Lynx Computers of Windsor, comprised a 48k Apple II, two disc drives (later increased to three), a TV monitor and a Paper Tiger printer, running invoicing, stock control and accounting packages.

"We spent a lot of time looking for the right invoicing program," says John. "It had to be versatile enough to cope with our six scale pricing structure. Although we didn't find exactly the one we wanted, we have had one altered to suit our needs and it's working really well."

However, it was not all plain sailing. John Noel couldn't understand why there were so many disc drive problems and faults in the program within the first few months.

"In the end, after numerous visits from Lynx, we realised that problems were being caused by an influx of dust infiltrating the system and effectively clogging the works," he said.

The Apple is used in an office in the main warehouse which is very dirty and dusty. To overcome this, the system is cleaned with special fluid once a week and special dust covers are being made for the equipment.

But apart from the initial dust problems, how do they feel about their system? "It's going great", enthuses John. "The invoicing program has saved us hours of laborious manual work."

The system is used to run a complex sales analysis program which is able to cope with 400 lines of feed, each with five set prices and one variable price.

It enables Mike Richardson to keep a constant check on which line is selling well, which is not and what is sold for what price.

Other applications include the calculation and analysis of VAT payments and the running of a lengthy stock control program.

"We make a lot of daily transactions in our business," says Mike, "and it is essential to keep a constant check on levels of stock. It would be disastrous if we ran out of anything.

"Likewise, we don't want to tie up money in too much stock.

"With the Apple we can have continuous feedback on levels of stock without having to wade through files of paperwork."

Crunch in the granny annexe

HUSBAND and wife team David and Gill Mayo are typical of the smaller concerns to utilise an Apple system within their business. And the success they're making of it – and their future plans in which it will figure – make their operation an object lesson for small companies still hesitating to put a toe in the micro waters.

For the last 11 years 47-year-old David and his wife have run a specialist business from their home, providing duplicate copies of 35mm colour slides. Typical customers of G.E.M Reproductions are companies who may need, for example, a number of slides from the one they hold in order to provide their representatives with their own set for demonstration/selling purposes, or when attending a training seminar.

And for the last year and a half of this period an Apple II running sales and purchase ledger systems written by Jarman Systems have been smoothing the flow of the colour slides to the working world.

G.E.M. Reproductions' establishment was not without its own touch of colour. "We started out with no resources working from the dining room table in a two-bedroom bungalow," recalls David. "It was the period of 'flower power' and we raised the money to buy our first camera by making and selling colourful ties to local shops, aimed at the flower children."

The business grew steadily. He and his family moved on first to a modern four-bedroom house, installing their kit (by now two cameras) in the spare bedroom and then – about six years ago – to their present location near Hemel Hempstead, working in what had been designed by the previous owner as a granny annexe.

Soon after this began the administrative problems inevitably associated with growth. The crunch came two years ago when the Mayos bought a Homrich camera for the slide copying work.

This could process up to three times as much work per day as the previous camera, but it exposed the in-built bottleneck of the invoicing and record keeping operations supervised by Mrs Mayo, who was increasingly overworked in attempting to keep pace with the expanded output.

Invoicing alone was by now running into several thousands per month, and computerisation was recognised as the obvious solution. But it took some time for David Mayo to find a system he was convinced could do the job.

"Six months' research and attending demonstrations with ready made programs left me convinced there were many cowboys in this area," he says. "Jarman Systems were the first to discuss problems and advise me in jargon-free terms, and it was obvious that their accounting software was based on specialist accounting knowledge."

David bought an Apple II-based Jarman sales ledger system in January 1981 and followed this with installation of the purchase ledger package in October nine months later. The net result was that he and his wife were able to continue with expansion of the basic business comfortably from their home base without the need to take on staff or to move into purpose-built premises – neither of which avenues had any appeal.

The sales and invoicing system has brought administration and paperwork nicely into gear with the slide copying ability of the latest machine.

The Mayos also use the Visicalc financial planning and Applewriter packages, the latter being particularly useful in price list circulars. These form an impressive array of technology, but one which G.E.M. Reproductions have proved can be an economic proposition to the smallest of business enterprises.

Over the last few weeks many pages of the computer press have been devoted to the technical details of new Apple products, ranging from the latest and most extensive revision of the Apple II to Lisa – a totally new concept in personal computing.

Interesting as these facts are, many users could not care less about the technical merits of 48k versus 64k and the like. What is of interest to them is the thinking behind the improvements and how they will benefit them, the end user.

It is the aim of this article to outline some of the planning behind the development of the Apple IIe and where these new features place the Apple in the micro market. However, we have not abandoned the technical outlook and are planning a series of articles for future issues of *Windfall* looking at specific features of the new products in depth.

In addition to describing the new facilities we shall be looking at how these features are being exploited by software houses to give more flexible and easier-to-use packages. Indeed, we shall also be looking at the impact of the Apple IIe on existing products.

Anatomy of the Apple IIe

By PETER BRAMELD

IT was with a sense of anticipation that we travelled to Hemel Hempstead to see Steve Holmes, who is Apple IIe product manager.

Windfall is an independent publication and has no commercial ties with Apple UK. While this enables us to express a purely subjective opinion on product quality it also means that we have no automatic right of access to Apple personnel. We are therefore grateful to Steve for giving us the opportunity to see behind the scenes.

One of the first topics for discussion was the future of the old Apple II+. This item was soon despatched when Steve told us "the Apple II+ has gone for ever. All existing orders have been met and our production line is now producing the Apple IIe."

But he emphasised that there would be no reduction in the support given to existing Apple II+ users.

As an Apple II user of several years standing, I was naturally curious as to the thinking behind the rapid departure of the old Apple. This led to a detailed discussion about the strategy and reasoning behind the development of the Apple IIe.

In order to decide the pattern of future developments Apple looked to who was using the machine and what they were doing with it. An extensive world-wide survey was carried out which resulted in a profile of the average user.

By far the largest proportion of machines are being used in business (80 per cent) and it is claimed that 30 per cent of these users will buy a second machine in the coming year.

The tasks the computer is currently performing were also analysed. The result indicated that there were five main areas of activity:

- Calculation
- Information management
- Word processing
- Business graphics
- Communications (ie networking)

The level of computer literacy the end user may be expected to possess was also examined. The pattern has changed considerably since 1977.

At that time most users were computer buffs with a good understanding of how the machine worked, along with a wish to get to grips with the nuts and bolts of the system. By contrast, today's user is seen as a professional person who wishes to supplement existing skills without having to bother with how the computer works.

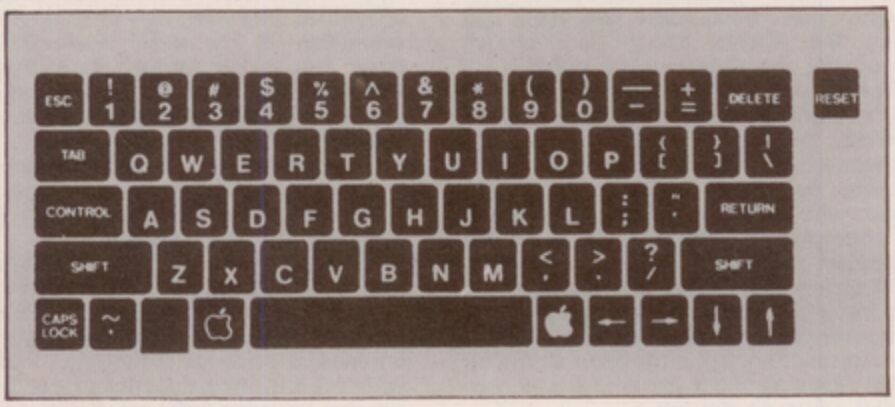
Let us now look at the consequences of Apple's marketing strategy on us, the end user. The type of software available at the launch of the IIe reflected the five-concept market – Multiplan, Quickfile IIe, Applewriter IIe, and Apple Business Graphics.

If you were wondering where the extensive library of games software fits into all this, Apple's survey also revealed that 23 per cent of businessmen play games on their Apples.

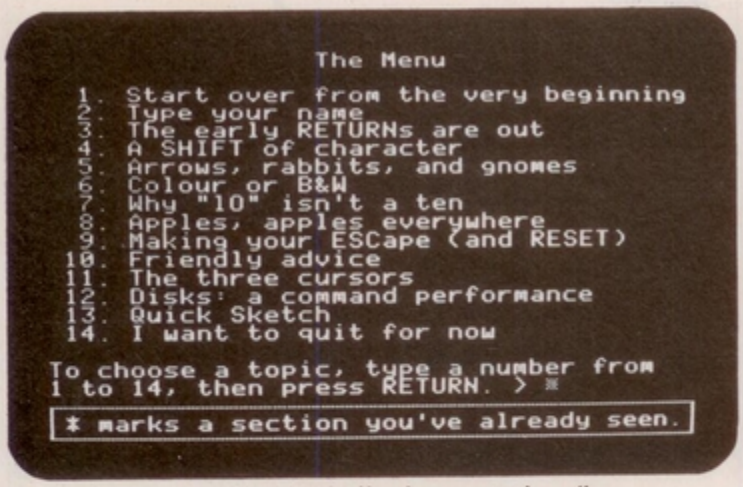
Most educational software has its origins within the walls of academic establishments and I am sure that this will not be adversely affected by this business emphasis. The change in computer awareness of the end user is reflected in the quality and nature of the instruction material supplied with the basic machine.

One easily understood, well illustrated instruction book is supplied as standard. This, wherever possible, avoids the use of jargon. It is written on the assumption that you have purchased your machine along with a software package, and touches only lightly on programming and the like.

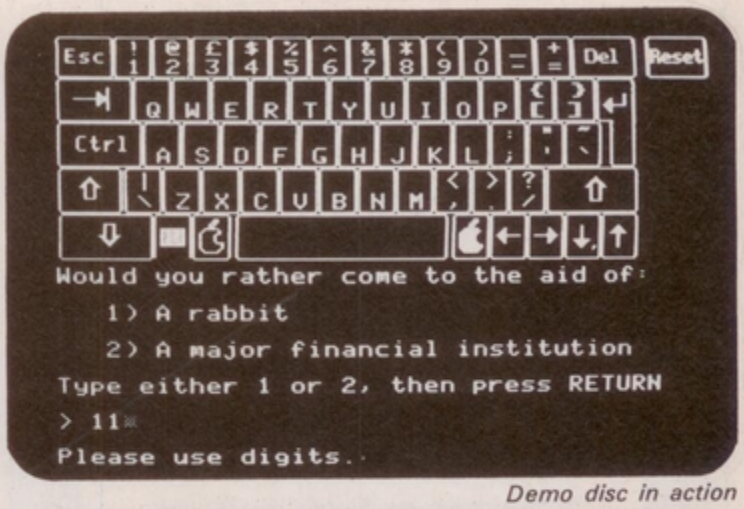
The manual is lavishly illustrated with a



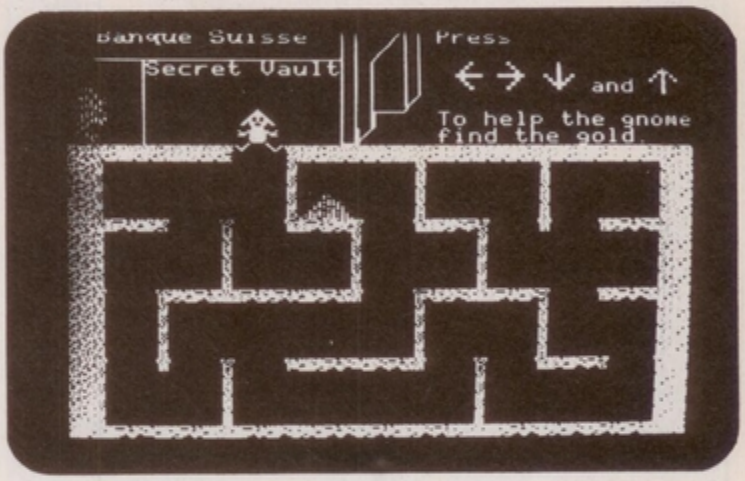
The IIe keyboard



The main menu on the Apple IIe demonstration disc



Demo disc in action



large number of colour photographs but I found some of these illustrations somewhat obscure. For example, the section headed "Assembly of a System" begins with a picture of a man in a brewery consuming a glass of wine. Simple as the assembly process is, I would not advise one to preface it with a visit to a pub.

Chapter three, entitled "How it works", shows a man in his pyjamas on a bed complete with Apple and two children. I leave the connotations of this illustration to your imagination.

Any budding programmers or systems analysts who are getting depressed at this stage should not worry. Apple have not forgotten you. It's only the emphasis to benefit the first-time user that's changed.

There is a pack of additional manuals available covering programming in Applesoft (three volumes) and an extensive reference manual which delves deep into the inner workings of the machine. The quality of these manuals is superb and they will be the subject of a later review in their own right.

The complete pack costs £30 but they can be purchased separately if required.

As well as the owner's guide discussed above, the basic machine comes with a disc entitled "Apple presents Apple". This is a tutorial disc which makes full use of the Apple's graphics facility. It takes the user on a complete tour of the machine's facilities, starting with the keyboard.

There is also a DOS system master disc, which is similar to that supplied with the Apple II+ but some of the programs have been renamed to reflect what they do exactly. For example, the program previously called "Muffin" is now called "Convert 13" (what did Muffin mean anyway?).

The same user-friendly approach is used in the instructions provided with the new software packages.

Quickfile IIe will soon have a demo disc and the instruction books are presented in a similar manner to the owner's guide. They have even gone to the trouble of translating some of the contents from American-English into the real thing.

I hope you find this background information interesting and can see that with a knowledge of the philosophy behind the Apple IIe you will know what to expect in the future and how to make the best of what is available at present.

In forthcoming articles we shall be looking at the Apple IIe and supporting products in depth. It is our aim to present the technical facts in a form that will satisfy the appetite of the technical reader but at the same time enable someone with a non-technical background to fully appreciate what the hardware can do for him.

It's not enough to have a machine with sparkling specifications. It must be well supported with application software and instructive documentation that can be used and understood by a wide range of disciplines.

A computer without this support is about as much use as a car without petrol. If you feel that this article is too euphoric, it reflects my enthusiasm for the product which, despite being involved with the micro market for a number of years, I find difficult to contain.

If you have not been able to align yourself with Apple's view of the end user, do not worry. Take some pride in the fact that you apparently belong to the minority 20 per cent of users, and with 15,000 software packages currently available I am sure there will continue to be something there for you.

Let us now see what conclusions we can draw from this brief glimpse behind the scenes. First, the Apple II+ is no longer in production. RIP.

One could speculate that its rapid departure is due in part to the success of the IIe. At the time of our visit IIe systems were being distributed at the rate of two 36-ton container loads per week (anyone like to calculate how many systems in 36 tons?)

Second, having identified the largest potential market as lying in the business sector we can expect a ready supply of business-orientated packages to exploit the new facilities which the IIe offers.

The realisation that a lot of end users are not interested in how the computer functions should mean that these packages are extremely user-friendly.

It is important to remember when playing the numbers game that the 20 per cent of users who are not actively involved in business represent a large number of people. These individuals will continue to be more than adequately catered for.

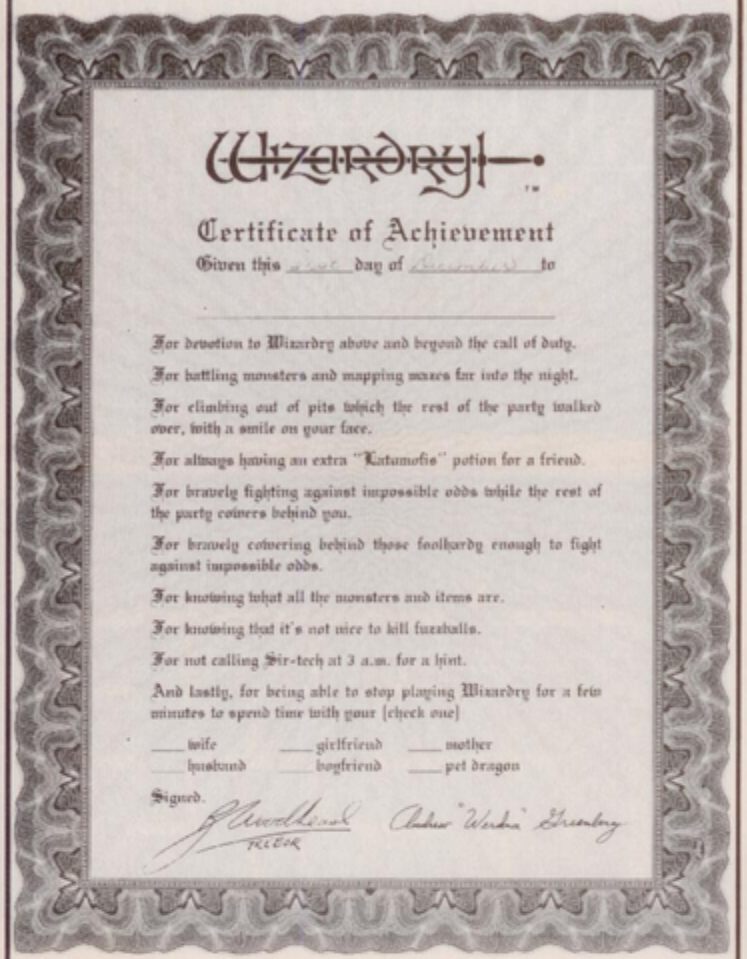
Apple is continuing an open-door policy over information relating to the inner workings of the system. An example of this is the full monitor ROM listings and circuit diagrams which come as part of the supplementary manuals package.

To sum up. I mourned the passing of my old friend, the Apple II+. However, I'm delighted to discover that he is not really dead but alive and well and living in Hemel Hempstead under a new guise. After major surgery he is enjoying a new lease of life as the IIe.

● *The next article in this series will examine the IIe keyboard and will illustrate the facilities it offers and the ways they can be exploited.*

Wizardry

The Ultimate Fantasy Experience ™



THE LEGACY OF LLYLGAMYN

(The Third Wizardry Scenario)

£28.75 inc.

WIZIPRINT

Character Printout Utility

£19.55

All prices quoted include VAT/P&P

All our titles are disc based – a full list of what we have available is free on request. Personal callers by appointment only – 24 hour service 7 days a week!

Trade enquiries invited

WOODLAND SOFTWARE

103 Oxford Gardens, London W10 6NF.
Telephone: 01-960 4877

THE Midland Computer Fair

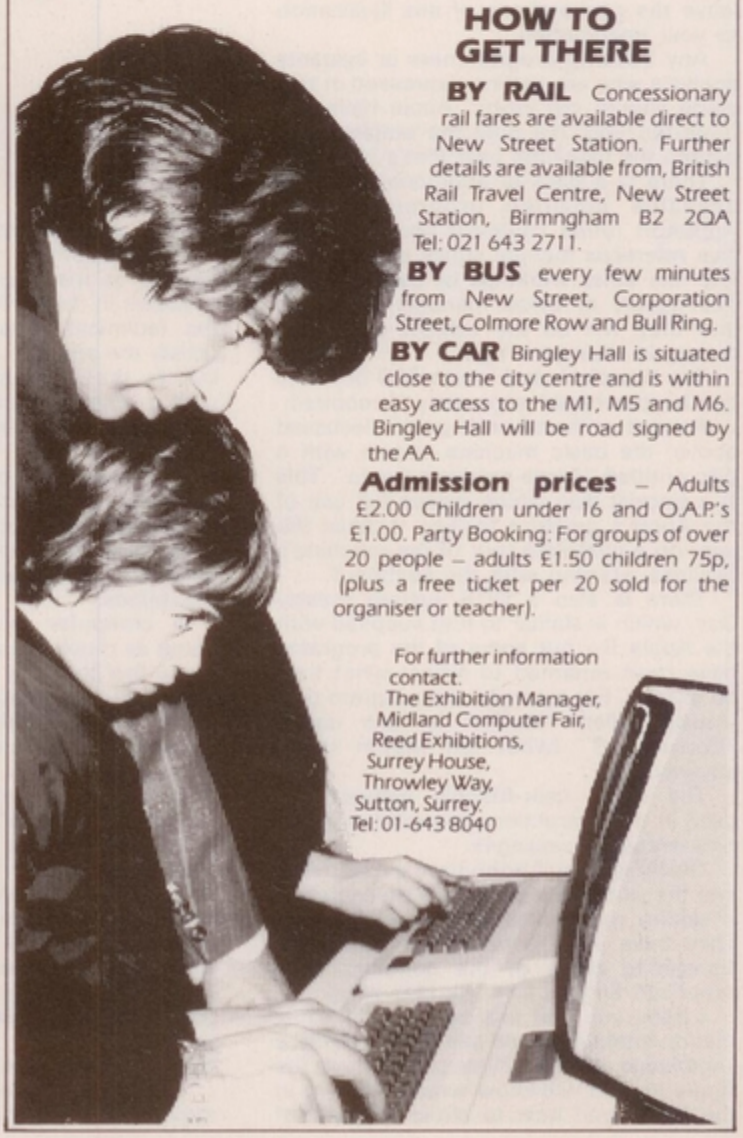
Personal computers
Home computing
Small business systems

BINGLEY HALL, BIRMINGHAM

28-30 APRIL 1983 Thurs & Fri 10am – 6pm
Saturday 10am – 5pm

Presented by YOUR COMPUTER **Practical Computing**

This event is the first of its kind in the Midlands, and gives you the opportunity to see and compare the enormous range of personal and home computers, small business systems, micro-computers, software packages, cassettes and scores of the very latest computer games – try them for yourself – decide how much, or how little it takes to build up your own personal computer system.



HOW TO GET THERE

BY RAIL Concessionary rail fares are available direct to New Street Station. Further details are available from, British Rail Travel Centre, New Street Station, Birmngham B2 2QA Tel: 021 643 2711.

BY BUS every few minutes from New Street, Corporation Street, Colmore Row and Bull Ring.

BY CAR Bingley Hall is situated close to the city centre and is within easy access to the M1, M5 and M6. Bingley Hall will be road signed by the AA.

Admission prices – Adults £2.00 Children under 16 and O.A.P's £1.00. Party Booking: For groups of over 20 people – adults £1.50 children 75p, (plus a free ticket per 20 sold for the organiser or teacher).

For further information contact.
The Exhibition Manager,
Midland Computer Fair,
Reed Exhibitions,
Surrey House,
Throwley Way,
Sutton, Surrey.
Tel: 01-643 8040

PAYROLL ///

Probably the best Payroll on the market today . . .

APPLE][, //e & APPLE /// versions available.



PAYROLL /// is a suite of programs designed, along with an easy-to-follow reference manual, to give you full control of your employee records in the simplest possible form. It is written in UCSD Pascal and menu driven for ease of operation. Each floppy disc will accommodate up to 200 employees or 2,500 employees on ProFile hard disc.

NEW FEATURES

- **STATUTORY SICK PAY CALCULATIONS**
- **ABILITY TO LINK TO ORBIT LEDGERS**
- **ABILITY TO LINK TO TIMELORD TIME RECORDING DEVICE**

Only £350 plusVAT

* Dealer terms available.

Deverill Computer Services Ltd.

dcs

17-19 Parkstone Road, Poole, Dorset BH15 2NN.
Telephone: Poole (0202) 684441

ADALAB

The Apple computer laboratory interface.

- COLLECTS & STORES LAB DATA
- CONTROLS INSTRUMENTS & PROCESSES
- SWITCHES VALVES & RELAYS
- TIMES EVENTS
- COMMUNICATES WITH OTHER COMPUTERS
- EXPANDS AS YOUR NEEDS GROW

● FULL SUPPORTING SOFTWARE

● Lab data manager ● Curve fitter ● Scientific plotter

REQUEST OUR FREE BROCHURE TODAY!

HEYDEN DATASYSTEMS

Heyden & Son Ltd
Spectrum House, Hillview Gardens,
London NW4 2JQ
Tel: 01 203 5171 Telex: 28303

To: Heyden & Son Ltd Spectrum House, Hillview Gardens
London NW4 2JQ

Name.....

Company.....

Address.....

.....

Tel:..... W/4/83

Now make your Apple REALLY sing!



Add a completely new dimension to your Apple with the Windfall Hi-Fi Adapter.

Designed to our own strict specification, it fits neatly inside the Apple with a toggle switch just protruding through a cooling fin on the left hand side.

With the switch in the up position the Apple's own speaker is activated. Switch down and the sounds of missiles, collisions, explosions – and their musical accompaniment – come through your hi-fi with a startling realism you would not have believed possible.

Fitting is extremely simple and no technical knowledge is required.

Please supply Windfall Hi-Fi Adapter at the price of £25, plus £1 post & packing.

☐ I enclose cheque ☐ Paid by credit card

Credit card name

Number

Expiry date

Name

Address

.....

Signed

Send to: Windfall, FREEPOST, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY. No stamp needed if posted in UK.

LOOK! . . . FOR ALL YOUR apple ACCESSORIES

PA

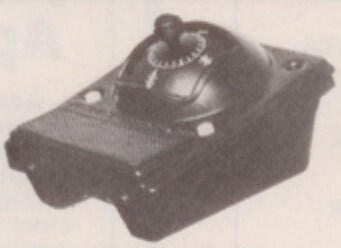
- All items fully guaranteed for one year
- Free postage and packing within UK
- Immediate delivery
- Many more items available

BUSINESS SOFTWARE	NET	INC. VAT
Access	162.00	186.30
Business Forecasting Model (Reqs. Visicalc)	69.00	79.35
Calcstar (CP/M) (80 column spread sheet)	69.00	79.35
dBase II (CP/M)	325.00	373.75
Data Star (CP/M) (powerful data entry)	122.00	140.30
Data Perfect	67.00	77.05
D.B. Master (version 3.02)	119.00	136.85
D.B. Master statistics	62.00	71.30
D.B. Master utilities (links with visi's)	62.00	71.30
Desk Top Plan II	89.10	102.35
Dutil (for dBase II)	65.00	74.75
Graphmagic (bar graphs, pie charts, etc)	59.00	67.85
Mathemagic	59.00	67.85
Msort-80 (stand alone CP/M sort)	125.00	143.75
Multiplan (Microsofts superior spreadsheet)	155.00	178.25
Omnis	195.00	224.25
PFS Filing system	68.00	78.20
PFS Graph	68.00	78.20
PFS Report	53.00	60.95
Quick Code (for dBase II)	189.00	217.35
Supersort (CP/M)	99.00	113.85
The General manager (ver 2.0)	135.00	155.25
The Last One (programme generator)	185.00	212.75
Versaform (form generator in Pascal)	192.00	220.80
Visicalc	122.00	140.30
Visi + (visicalc consolidation)	19.45	22.37
Visicalc utilities	34.00	39.10
Visidex	135.00	155.25
Visifile	135.00	155.25
Visiplot	135.00	155.25
Visitrend/plot	155.00	178.25
WORD PROCESSING		
Applewriter II	72.00	82.80
Executive Secretary	149.00	171.35
Executive Speller	49.00	56.35
Format 80	195.00	224.25
List Handler (Mailer & Form Letter)	69.00	79.35
Pie Writer (40/80 columns)	87.00	100.05
Sensible Speller (new fast proof reader)	69.00	79.35
Sensible Speller (CP/M)	69.00	79.35
Screenwriter II (70 col w/out 80 col card)	75.00	86.26
Super Text 40/80	114.00	131.10
Wordstar 3.01 (CP/M) (enhanced features)	135.00	155.25
Word Handler (does not req. 80 col. card)	99.00	113.85
Zardax (40/80 & inc form letter)	139.00	159.85
PRINTERS		
Epson RX-80 (100 cps tractor feed)	275.00	316.25
Epson FX-80 (160 cps & prop. spacing)	399.00	458.85
Epson MX100FT-3 (100 cps & wide carriage)	429.00	493.35
Mannesmann Tally MT120 L (160 cps)	525.00	603.75
Strobe Graphics Plotter	545.00	626.75
Nec 8023 (100 cps & prop. spacing)	339.00	389.85
Tec 1500-25 (25 cps daisy wheel)	525.00	603.75
Tec Starwriter F10-40cps	1099.00	1263.85
PRINTER INTERFACE CARDS		
Aristocard Parallel	69.00	79.35
Aristocard Serial	75.00	86.25
Asynch Serial I/Face (7710A)	119.00	136.85
CPS Multifunction Card (inc real time clock)	119.00	136.85
Digitek Printmaster (BASIC/CPM/PASCAL)	69.00	79.35
Grappler + (Epson/Anadex/Cent/Nec)	98.00	112.70
IPB-16K (serial/parallel card & buffer)	129.00	148.35
MBP-16K (Epson 16K buffer)	96.00	110.40
Microbuffer	95.00	109.25
80 COLUMN CARDS & ACCESSORIES		
Softswitch (for Videx Videoterm)	24.95	28.69
U-Term (inc shift mod. & font editor)	127.00	146.05
Videx Enhancer II	83.00	95.45
Videx Inverse Eprom	18.45	21.22
Videx Utility Disc (inc font editor etc)	27.00	31.05
Videx Videoterm	175.00	201.25
Visicalc preboot disc (80 col with videx)	32.00	36.80
Vision-80 (incs softswitch & inverse)	185.00	212.75
MONITORS/COLOUR CARDS		
Digitek Colour Card (excellent colour on TV)	95.00	109.25
DMS R.G.B. Colour Card	60.00	69.00
Kaga 12" Green Screen	105.00	120.75
Microvitec colour monitor	275.00	316.25
Microvitec colour card (use with above)	35.00	40.25
Zenith 12" Green screen (very good value)	89.00	102.35
GRAPHIC UTILITIES & MUSIC		
Arcade Machine (game designer)	42.00	48.30
Bit Stik (Robocom)	245.00	281.75
Complete Graphics System (Penguin)	65.00	74.75
Digitizer II	189.00	217.35
E-Z Draw 3.3 (excellent graphic utility)	32.00	36.80
Graforth (fast 3D utility plus music)	46.00	52.90
Graphics Magician (Penguin)	39.00	44.85
Graphic package Sublogic (detailed 3D pack)	74.75	85.96
Higher Text II (many diff fonts, sizes, cols)	25.45	29.27
Pascal Animation	41.00	47.15
Pilot Animation tools	41.00	47.15
Special Effects (Penguin)	27.00	31.05
The Artist	55.00	63.25
Versawriter (graphic digitizer)	179.00	205.85
Versawriter expansion pac 1	25.00	28.75
Zoom Grafix (similar to zoom on Bit Stick)	23.95	27.54
Alf Music System (9 voice)	85.00	97.75
Audex	18.95	21.79
Electric Duet (creates 2 part music)	21.00	24.15
Forte (4 voices & 9 octaves)	15.95	18.34
Music System (Mountain Computer 16 Voice)	211.00	242.65
S.A.M. (software automatic mouth)	75.00	86.25
Zapple Sound Effects & Music Board	56.00	64.40
UTILITIES		
Aplus (Applesoft structured Basic)	18.95	21.79
Appleguard (provides software protection)	185.00	212.75
Apple Mechanic (Beagle Brothers)	25.00	28.75
Assembly lang. Dev. (6502, Z80 or 8080)	75.00	86.25
Bag of Tricks	24.95	28.69
B.E.S.T. (Enhanced Software Tool)	23.95	27.54
Build Using (Provides 'print using' command)	23.95	27.54
Copy II Plus	35.00	40.25
Disc Doctor (CP/M disc recovery)	89.00	102.35
Disc Library (incl CP/M & Pascal)	34.95	40.19
DOS 3.3 Tool Kit	41.00	47.15
Dos Boss (modifys Dos Commands)	15.00	28.75
Edit Soft (powerful macro line editor)	19.95	22.02
Fast DOS	19.45	22.37
Global Program Line Editor (supports 80 col.)	35.50	40.83
Image Printer-Epson (flexible hi-res dump)	32.00	36.80
Lisa (Assembly lang. dev. system)	57.00	65.55
Lisa (Educational system)	75.00	86.25
List Master (inc. smart renumbering)	23.95	27.54
Locksmith 4.1 (bit copier for most discs)	61.00	70.15
Merlin Macro Assembler (editor & utilities)	42.00	48.30
Munch A Bug	32.00	36.80
Printographer (supports almost any printer)	28.95	33.29
Speed Star (compiles 1200 lines per min.)	75.00	86.25
Super Disc Copy III	25.00	28.75
Tasc Compiler (handles v. large programs)	105.00	120.75
The Bug (Assembly Language debugger)	35.00	40.25
The Inspector (disc snooper, needs 16K cd)	35.00	40.25
The Routine Machine (mach. lang. routines)	45.00	51.75



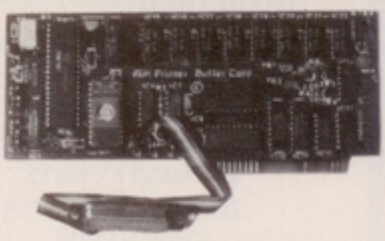
DIGITEK COLOURCARD

This amazing card gives high quality colour and includes a wide band modulator, simply plug in your TV or Pal monitor. £95.00 + VAT.



THE BIT STIK GRAPHICS SYSTEM

A large smooth tracking hemisphere with adjustable back pressure, and probably the most powerful Microcomputer graphics software available. £245 + VAT.



IPB-16K SERIAL/PARALLEL INTERFACE & BUFFER

Now you need only one interface card to support both your daisywheel and dot matrix printers plus the benefits of a 16K buffer to speed things along. £129 + VAT.



STROBE GRAPHICS PLOTTER

Create superb hardcopy graphics directly from your Apple at a fraction of the cost of most other systems. A4 size or transparencies. £545.00 + VAT.

MICROVITEC 14" COLOUR MONITOR



Besides offering a crystal clear display in either text, hi-res or low-res modes. It also includes the following features, 16 text colours, b/grd colours, 80 column card compatibility. A superb colour monitor for £275.00 + VAT.



12" KAGA MONITOR

Features 24 M/Hz bandwidth, giving a very clear display, and contained in a neat Apple compatible case. Green screen £105 + VAT.

CE

0274 575973

SYSTEM EXPANSION		
16K Ramcard Digitek	75.00	86.25
16K Ramcard Ramex (Intelligence Research)	55.00	63.25
32K Ramcard Saturn	135.00	155.25
128K Ramcard Saturn	299.00	343.85
128K Ramex card	275.00	316.25
Cool stack (holds 2 drives & monitor + fan)	65.00	74.75
DOS upgrade kit (3.2 to 3.3)	36.00	41.40
E-Z Port (game socket extender)	17.00	19.55
E-Z Port II (2 game socket extenders)	22.00	25.30
Eprom Card (holds 6)	52.00	59.80
Keyplus Numeric Keypad	83.00	95.45
Lower case adapter W/shift (rev 7+)	34.00	39.10
Pact clip on fan	46.00	52.90
The Mill 6809 with Pascal speed up	189.00	217.35
Time Kit	55.00	63.25
VC-Expand/80 (up to 145K Visicalc & 80 col)	65.00	74.75
VC-Expand Ramex (loads 136K visi in 20 sec)	40.00	46.00
Videx Function Strip (req Enhancer II)	49.00	56.35
VIA 6522 Card	59.00	67.85
Z80 card U-micro (card only)	73.00	83.95
Z80 card Microsoft (New Softcard)	199.00	228.85
LANGUAGES		
Apple Pascal	142.00	163.30
Apple Pilot	80.00	92.00
Cobol 80 (CP/M)	399.00	458.85
Forth II (Interger only)	45.00	51.75
Fortran 80 (CP/M)	125.00	143.75
Terrapin Logo	95.00	109.25
Transforth (full floating point Forth)	75.00	86.25
MISCELLANEOUS ITEMS		
Disc Drive (Fully Apple Compatible)	199.00	228.85
Disc Drive Controller Card	54.00	62.10
Disc Head Cleaning Kit (50 discs & fluid)	19.95	22.94
Disc tray (40 discs & lockable)	17.45	20.07
Games Paddles	25.00	28.75
Joystick (Self Centering)	38.00	43.70
Master Diagnostic Disc	48.00	55.20
Plastic Disc Box	2.50	2.88
Ram Card utility (permits s/ware backup)	59.00	67.85
Trak Ball (TG Products)	45.00	51.75
Typing Tutor II	14.95	17.19
Wabash 5.25 Discs Pack of 10	17.95	20.64
Wildcard (permits software backup)	93.00	106.95

Orders from Colleges and Government Depts. etc welcome

Please make your order by completing the coupon and returning to us – or you can phone **DAVE** or **SHERIDAN** on **0274 575973** and your enquiry will receive a friendly and speedy response.

PACE-SOFTWARE-SUPPLIES

Rose Bank, 130 Clayton Road, Bradford BD7 2LY, West Yorks.

Please rush me the following items.

		£	p
1			
2			
3			
4			
5			
	TOTAL		

I enclose my cheque made payable to PACE SOFTWARE
(Export licence arranged)

Name _____

Address _____

Town _____

County _____

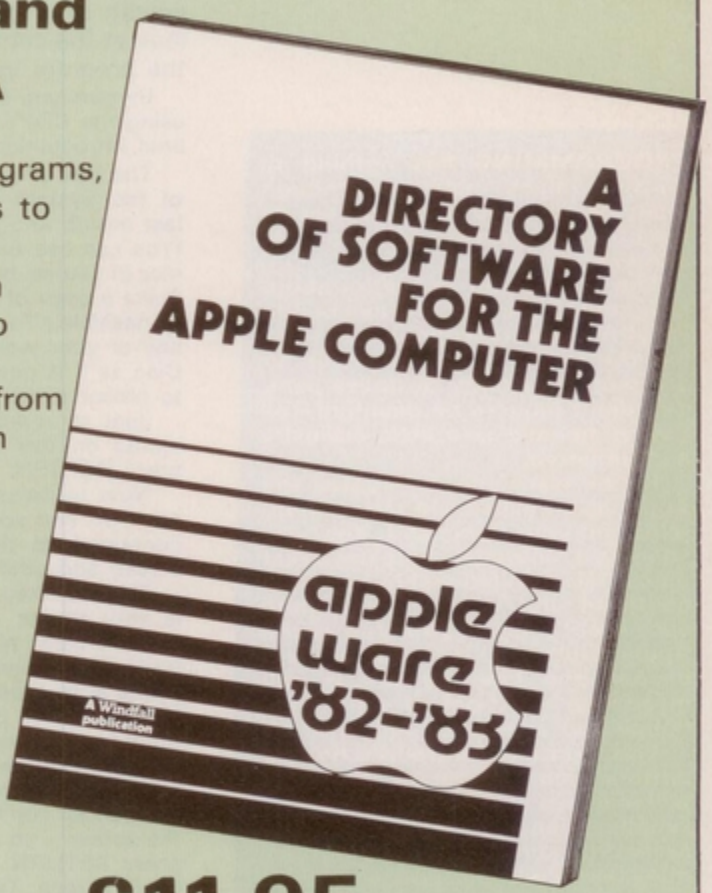
Postcode _____ Tel. No. _____

WF/22

NEW! More than 1,000 apple programs described in detail

The only complete, up-to-date directory of all the latest Apple software from the UK and the USA

- ★ Business programs, from invoices to tax records.
- ★ Utilities, from assemblers to 3-D graphics.
- ★ Educational, from administration to science simulations.
- ★ Games, from astro adventures to strategy games.



PLUS!

A unique guide to hardware add-ons – data storage, graphics tablets, interface cards, input devices, monitors, printers, music and speech synthesisers

£11.95

ORDER NOW!

Please send me copy/copies of Appleware '83 at £11.95

Postage 90p **TOTAL**

Payment: please indicate method (✓)

☐ Cheque/PO made payable to Database Publications Ltd

☐ Access/Masterchcrge/Eurocard

☐ Barclaycard/Visa

☐ American Express

Name _____

Address _____

Card No. _____

Signed _____ Expiry Date _____

POST TO: Database Publications, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY.

BEGINNERS, PLEASE

PROGRAMMING has nothing to do with black magic – although many people new to computers do tend to regard it with some form of superstitious awe.

The main thing to realise about programming is that you can have a lot of fun with it without ever leaving the ranks of the beginner, or amateur, or strictly business user. You don't have to be qualified – all that is needed is a little curiosity and initiative.

If you want you can regard the Apple as an expensive slave, there to act on your command. You may soon find, however, that the exact master-slave relationship becomes confused and you're never quite sure exactly which role you or the Apple is playing. If that does ever happen the chances are it will mean you are hooked on a new hobby and a changed lifestyle!

This month we show you how to write a simple program. Not only will this give you an insight into the simplicity (and to some paradoxical extent the complexity) of programming, but it will also encourage you to use the listings and tips carried each month in Windfall.

Many are relevant to business and educational uses of the Apple, so in future don't just turn the page thinking an Appletip is the domain of the serious programmers alone.

Even if the object of some of the programs listed doesn't appeal to you, the exercise of typing them in will greatly increase your knowledge of the inner workings of Applesoft (the Basic language used to communicate with your Apple). For an example, try the listing for Fishing on Page 43.

If you don't know how to type in a listing, this month's article gives you enough information to start experimenting . . .

WE showed you last month that there is a bit more to be got out of an Apple other than just switching it on and using it according to the instructions that come with a commercial software package. There was a first glimpse at the wealth of programs included in the seemingly simple System Master disc, a look at the contents of the disc (using CATALOG) and a chance to see some of the program instructions.

By now you should also have your own copy of the System Master disc, created by using the COPYA program. You also ran a program – so now we'd like to give you a brief introduction into the world of programming itself.

Get your name up in lights

The first thing to do is to take your copy of the System Master disc you created last month and place it in disc drive one. (You can use the original System Master disc of course, but we suggest that you do make a copy of it for regular use as soon as possible.) You would be unable to save any of your work on the original Master Disc as it is permanently write-protected to preserve the data it contains.

Just to remind you of the programs stored on this disc type CATALOG and press RETURN.

Now to create a small masterpiece of our own and add it to the list of goodies contained on the disc. It will clear the screen and write our name.

The first step when writing a program is very similar to composing a letter – select a clean piece of paper on which to write. The equivalent of this action on the Apple is to type on the screen the word NEW and then press RETURN. The Apple memory is now wiped clean, or is emptied, and awaits your next command.

However if you've followed our instructions so far you'll still see some writing on the screen – so type the word HOME and press RETURN. You should now have a blank screen. Try typing anything on the screen – complete gibberish will do nicely – and then press RETURN. Type HOME and press RETURN again.

HOME clears the screen of all the information it contains and places the cursor in the top left hand corner. If differs from the NEW command in that it only clears the area of memory which makes up the Apple's display. Any data (such as a program) which is hidden away in other parts of memory is unaffected.

To remove any other bits and pieces scribbled elsewhere in memory, type the command NEW. Now back to work.

The instructions we are going to give the Apple need to be preceded by numbers. The actual choice of number is irrelevant providing each number chosen is unique. It is common practice to start the list of commands at 10 and to proceed in steps of 10. This leaves space to insert extra lines later if necessary. Remember that the Apple reads line numbers in ascending order.

Type the following, pressing RETURN at the end of each line and remembering to include the quotation marks in line 20.

```
10 HOME
20 PRINT "PETER"
```

These two lines form a simple program. Line 10 performs exactly the same function as the last time you typed HOME – but it will now be carried out only under program control.

Line 20, which should be on a new line, reflects our intention to put some writing on the screen when the program is run and so, not unreasonably, the relevant command we type is PRINT. What we want to have printed should always be enclosed by quotation marks. To do this you will need to use the shift key. Hold the shift key down and at the same time press the key marked with a 2. You will see the quotation marks appear on the screen. Now release the shift key and type in your name, another set of quotation marks and press RETURN to end the line.

Remember, all we have done so far is to prepare a list of instructions that we want the Apple to follow.

To see if this little masterpiece performs as intended type the word RUN and press RETURN. If all goes well you should be left with a screen bearing the word "PETER".

If not you will most probably have been

Part 2

By DAVID CREASEY and PETER BRAMELD

issued with the menacing statement: ?SYNTAX ERROR.

This little schoolmasterish rebuke merely means that you have made a mistake – you haven't typed in the commands exactly as instructed. While computers are capable of performing tasks of considerable complexity, they are extremely fussy about the manner in which they are addressed. A missed quotation mark or the accidental inclusion of irrelevant information – say a spare comma – within a list of commands will usually result in the ?SYNTAX ERROR prompt.

The first thing to do when confronted by an error message is to check your commands for mistakes. Type LIST and up on the screen appear the lines of your program. If they are correct they should be identical in format to the two lines in Figure I.

```
10 HOME
20 PRINT "PETER"
```

Now if you turned off the power supply to your Apple at this point, your program would be destroyed, so let's store it safely somewhere.

First think of a name for the program – keep it short and without any numbers or punctuation in it at this stage. We'll call ours "PETER".

Type SAVE PETER, press RETURN, and you should see the red light go on on disc drive one, and hear the drive read mechanism whirring briefly. In real life Peter is probably beyond saving, but in programming terms we've now "saved" him as our program on the disc. To verify this type CATALOG and press RETURN twice, and you should see the name PETER as the last item added to the System Master list.

Note that the Apple doesn't know that you have finished typing an instruction until you press RETURN. So when we tell you to type a command, such as CATALOG, that automatically implies that you should end the relevant line with a RETURN.

If when you SAVEd your program you got the message ?WRITE PROTECTED, then you are not using the copy of the System Master you created last month. You are probably using the original which can't be written to – a handy device to save its contents from being obliterated accidentally.

You have already seen that your masterpiece can be displayed on the Apple screen by using the command LIST, so now let's demonstrate the destructive power of the command NEW which we used to select our blank sheet of paper at the outset.

Type NEW, press RETURN, and then type LIST followed by RETURN. Your program has now disappeared. It is no great loss on this occasion – but bear in mind that as you get more adventurous, your programs will become longer and the time invested in their construction more significant. Before typing NEW always check that you really want to destroy or discard what is held in memory by use of the LIST command.

If you now type, for example, RUN PETER, you will be able to get back on screen the version of your program you stored earlier on the disc.

In order to demonstrate how easy it is to introduce commands or change the screen display in an Apple program type:

```
15 FLASH
```

and press RETURN. This has added a line to our program which will result in the name flashing when it is printed on the screen.

Try it by typing RUN. While this means of presentation can be very eye-catching occasionally it tends to confuse – if not boggle – if all information is displayed in this form! To demonstrate this, LIST your program. Now everything is flashing, because we forgot to include in the program an instruction to switch off the FLASH mode.

To do this type 30 NORMAL and press RETURN before RUNning the program and LISTing it again.

Another form of presenting characters on the screen is to use the INVERSE command.

An example listing could be:

```
10 HOME
15 FLASH
20 PRINT "PETER"
30 NORMAL
40 INVERSE
50 PRINT "DAVID"
60 NORMAL
```

To get the Fishing game (on Page 43 of this issue) running on your Apple switch on, type the word NEW (RETURN), HOME (RETURN), and then type in the listing as it is printed, including the line numbers and remembering to press RETURN at the end of each line.

Type LIST to check for accuracy, and finally type RUN to play the game. It is a good idea to SAVE the program on a disc (as explained above) under a name you choose.

Remember, you don't need to understand what these commands do. If you type them in as shown and then type RUN, they will work.

We have deliberately chosen a listing that avoids some of the more advanced programming features as would be found in Assembly language routines, Pascal and shape tables, for example. The program you have just run is in Applesoft, although the Apple is capable of running a variety of other languages.

In the same way that you have just RUN "your" program you can have a look at other people's efforts by RUNning any of the programs listed on the System Master catalog which are preceded by an A (for Applesoft). You merely type RUN followed by the name of the program (not the asterisk, the first letter or any of the numbers shown on the CATALOG) and press RETURN.

RETURN is always used to tell the Apple that you have a package of information upon which you wish it to act. The reason for its name is apparent if you watch the screen as you press the key. The cursor (the flashing square) leaves the point at which it was flashing on the screen and returns to the left hand margin in a similar manner to the way you return your pen to the edge of a page before writing a fresh line.

ONE of the most impressive advantages the Apple IIe has over the Apple II is a new keyboard. As the result of this improvement the position of some of the characters has changed, meaning that on some occasions different key combinations are required to achieve a desired effect.

In the context of this article the only character occupying a different keyboard position is the " (double quotes), which are used to enclose the letters placed on the screen by means of the PRINT command. On the IIe this is positioned on the right of the keyboard above the ' (single quote).

The IIe also has a shift lock. To avoid confusion it is best at this stage if this key is in the locked position (that is, with the keys producing capital letters on the screen) and the upper symbols accessed by use of the normal shift key which is marked with an upwards pointing arrow.

We do not wish to imply that these differences will cause any problems in everyday use but as this article is aimed at beginners it seems sensible to point out areas of possible confusion.

Europe's top



The Fulcrum Centre, Slough, June 3–5, 1983

Opening hours:
Friday 3 June: 10am - 5.30pm
Saturday 4 June: 10am - 5.30pm
Sunday 5 June: 10am - 4.30pm

Organised by
Windfall
The Apple computer users magazine

Why the Fulcrum Centre?
The Fulcrum Centre offers the most up to date facilities for conventions and exhibitions, covering four floors.

This self-contained complex offers full catering facilities for a large number of people – ideal in size and facilities for an event like Apple '83.

It is situated in the centre of Slough, convenient for banks, shops and restaurants. The staff at the centre are extremely helpful, and dedicated to producing a highly efficient and worry-free weekend.

Slough is well placed for Apple '83 which will be attracting visitors from as far afield as the North of England, Scotland, Ireland and Europe. Heathrow airport is nearby, and there is convenient access to the motorway network. The M4 is just two miles away, and the M40 is 10 minutes' drive away.

Both the M1 and M3 can be reached within half an hour via fast link roads.

Frequent trains are available from London and the West, and the station is only a couple of minutes walk from the centre.

Reserve your show space now!

apple '83
2nd National Apple User Exhibition

Send to John Riding,
Apple '83 Exhibition,
Europa House,
68 Chester Road,
Hazel Grove,
Stockport SK7 5NY.

Please send me details of remaining stand availability at Apple '83.

Name

Position in Company

Company

Address

.....

..... Telephone

Apple event!

apple '83

Meet the experts at the Second National Apple Users' Convention

Find out what other people are doing with their Apples at Europe's largest three-day Apple get-together. The very extensive programme of events includes demonstrations of the latest developments in hardware and software, discussions on word processing, databases and financial spreadsheets, and case studies of the effectiveness of Apples in business and education. It's a unique opportunity to share the experience of leading Apple users and hear at first hand how Apples are expanding in new directions.



Accommodation has been made available for delegates at specially reduced rates in the luxurious Post House Hotel, Heathrow.

Included in the price is a seat on the courtesy coach to and from the Apple '83 Exhibition.

	Normal Price	**Our Price**
Single	£40.00	**£23.00**
Twin/Double	£47.00	**£31.00**
Triple	£52.00	**£36.50**

Prices are per room per night for bed and Continental breakfast including VAT. For only £4.00 extra you can enjoy Executive Club accommodation.

Apply for FREE exhibition ticket

Please send me:

..... free tickets to the Apple '83 Exhibition
(Visitors without tickets will be charged an entrance fee of £2.)

Details of the Apple '83 Convention

Name

Address

.....

.....

POST TO: Apple '83, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY.

DATABASE management systems are at the core of most businesses using Apples. They enable the storage and subsequent rapid manipulation of all kinds of information including personnel records, customer accounts and mailing addresses.

Once a package is up and running and employees are familiar with it, a business requires less people to do more things, storage problems are eliminated (although you could still keep paper copies of your database records) and efficiency improves.

Some packages try to be all things to all men, others are tailor-made for a specific application.

Here TERRY THOMPSON has a second look at Omnis, which is described by authors Blythe Computers as an information manager.

He says the instruction manual has been improved and he lists some of the features that make it an excellent package – its speed (an average of two seconds to retrieve a record from any sized database), its improved layout and ability to generate reports of up to 240 columns wide by 240 lines, and a password facility that enables an employer to control what information an employee using the package is allowed to see. It can also be used as a word processor to prepare standard letters.

Omnis can use a DIF format to enable it to interchange information with packages such as Visicalc.

It runs on an Apple II (with two disc drives and a memory expansion card), the new IIe (with two drives) and the Apple III (with disc drives or Profile hard disc), and a version of Omnis is available for networking. An Apple III can read Omnis files created on a II.

The package costs £195 for the II and IIe versions, which will work on floppy or hard disc, and £245 for the Apple III version.

Omnis, re-engineered for human beings

WHEN sending software and hardware for review, suppliers make all sorts of promises and claims regarding the future improvement of their products. "We'll be bringing out a better version in a short time, when its finalised," *or* "This is just a pre-release," *or* "If you let us know the product's faults before publication, we'll iron them out in a couple of days, so you won't need to publish them," are just a few.

Not all suppliers are the same by any means, but enough to make my comments valid – and in my experience I can honestly say that none have lived up to their promises. None that is, until Blythe Computers brought out their new version of Omnis.

When I first reviewed the package *(Windfall, August 1982),* I found it an excellent information manager. With its menu-driven format and vast reporting facilities, I thought it deserved its title.

I did, however, have some reservations and pointed out a number of deficiencies. These included the package not being completely bomb-proof or fail safe so that a user could end up confused by being dumped into the operating system, a manual that was over-technical and would be quite difficult to understand for the non-technical user, an unchangeable record format once set, and general slowness in accessing records.

When the upgraded package arrived, totally unsolicited, it was like a breath of fresh air. It does everything the old version did and much more. It is totally compatible with the old version, but to cap it all, the thing is completely user friendly.

There seem to be a lot of minor differences in layout, none of them noteworthy on their own, but taken together they make the package a pleasure to use and instil confidence. It has been re-engineered for human beings.

When you get the new Omnis, the first thing that greets you is a new, much improved manual. It contains a complete tutorial section for the average human user to understand.

The tutorial takes you step by step through setting up an information base, entering data, changing it, setting up and printing reports and then making full use of the data. All this in addition to the still excellent technical reference section.

The next thing of particular note is the password access to the information, which is an excellent feature for a business user. On the previous version this facility was extremely basic. The new version still has the same master access class (which would give a manager, for example, total control over all the information in the database) but also has four definable user access passwords.

Use of one of these passwords by an employee would enable him to see only the information that the master holder wants him to.

These passwords can restrict access to any part of the whole package – even down to individual fields in the information storage, whether a user can delete files or not, whether the user can print out reports, or alter their format – the list is almost endless.

Obviously, this has been designed to

Slow, perhaps, but the wait's worth while

and infor-
available at
of a Pascal
per end of
robable to

nagement
yth Com-
sized ring
and the
ith 40 or,
0 column

wo 5¼in
ilable for
Apple IIs
through
56k Apple
cartridge

screen(s), entering fields as and when desired. The number of types of fields available should meet just about everybody's needs. Mistakes in the layout or order can be easily corrected. However once set up and data entered, the length

calculated fields and report fields. Once formatted, the report can be saved onto or loaded from the configuration disc for future use, when it can just as easily be altered to take account of different needs, saving time and effort.

Flashback to Windfall, August 1982

stop the temp secretary seeing what the managing director is earning, for example.

When setting up on the old version of Omnis, you had to guess the number of records you would require so that it could set aside disc space for the data on a blank disc and you had no option as to the choice of which drives to use.

The new one gives you the option of splitting data between up to four drives. The drives capacity can be of any size, you just tell the program how much space to allocate.

The reporting facilities on the old version were vast but the format of the report was restricted to 160 columns by 24 lines. The latest one has the same facilities except the format has been expanded to an incredible 240 columns by 240 lines. If you can't get your report into that you should be using a mainframe!

One problem with the old version's reporting was that once a report format had been stored there was no way of telling what report formats were on disc without going into the operating system's filer. They are now presented as a menu of options when you select reports from the main menu.

In the previous review I commented on the apparent slowness of data retrieval. While compiling that review I was only using a small information base and Omnis was taking about two seconds to retrieve a record from it. Since then the base has expanded considerably and yet that two seconds has remained constant. Omnis is definitely not slow – it seems to have the same speed regardless of the number of records stored.

The biggest enhancement is the promised utilities package. This allows you to expand and change the data format to meet changing needs and to communicate with other software, including the Visicalc family, in a standard way.

The utilities package gives Omnis the ability to write out and read data interchange format files – a file specification developed by Software Arts Inc., the Visicalc originators, to enable VC and other programs to talk to each other.

The advantages for Omnis are obvious. Also when creating a DIF file what goes into it and where is completely at the control of the user.

In order to add or delete fields from data you write out all the data to a DIF file, change the setup of the data file inside Omnis and then read back the DIF file. The method is long-winded, especially when you realise that Omnis reads the DIF file as though it was being typed at the keyboard. It takes a long time but it should only be required rarely, if at all.

Two other features the utilities package gives you are the ability to re-index the data file and to recover a damaged chain. This means that if the link from one record to another goes astray inside the machine somewhere you can ferret it out and put it back where it belongs, instead of losing all your data.

Omnis also has a word processing capability. A user can prepare standard letters (with underlining or bold script if required) and merge them with addresses and other information from the database.

All in all the package has moved from very good to excellent. It is refreshing to come across a software house that has its users in mind and listens to what they say. Blythe Computers deserve a pat on the back.



THE MODERN WAY TO CONDUCT YOUR BUSINESS

SOLIDUS SYSTEMS

STOCK CONTROL WITH STOCKFILE

* 9486 on-line items, TWO SECOND access.
* Part numbers up to 20 characters long, alpha or numeric.
* Complete report generation facility plus 5 pre-defined master reports.
* Any report can be printed in any sequence.
* Provides the data-base for STOCKSELLER and STOCKMAKER.

TOTAL SALES CONTROL WITH STOCKSELLER

* Up to 1750 customers, unlimited number of invoices.
* Produces customised invoices, quotes, packing slips, credit notes, statements and backorders.
* Complete sales and profit analyses, summaries, month & year-to-date statistics, customer aged trial balance.
* Individual discounts for each line item on an invoice.
* Up to 9 V.A.T. rates and full V.A.T. reporting.

MANUFACTURING CONTROL WITH STOCKMAKER

* Processes 980 assemblies with up to 90 components per assembly and six levels of sub-assembly.
* Determines availability of stock for production.
* Calculates cost prices of finished goods.
* Updates stock levels of raw materials & finished goods.
* Reserves stock for future production.

designed for the Apple II Plus* microcomputer

SOLIDUS INTERNATIONAL CORPORATION (UK) LTD Tel: (01) 688 5164
Mill House, Wandle Road, Beddington, Croydon, CR0 4SD.



Apple Pilot problems? . . it must be pilot error!

BRIAN Rushton remarked in January's Windfall that there appeared to be two problems with Apple Pilot – editing and disc wear. It is obvious from his remark that he has not really used Apple Pilot!

He remarks that editing in Apple Pilot is cumbersome compared with Basic. What editing is there in Basic? One of the best features of Apple Pilot is the editor. True, it does take a little time to grow accustomed to, but once familiar with it the editor is a most powerful and useful tool.

It is, in fact, a type of word processor enabling an author to do many of the things he can do with a purpose-built word processor. Paragraphs of text can be copied or deleted and moved from one part of the program to another. The editor can automatically search the program for any author-defined word or combination of characters, and that word can be automatically replaced by another chosen by the author.

As regards Brian Rushton's remark about disc wear, his fears are unfounded. I have been using Apple Pilot for over two years and no disc has shown any sign of wear – not even the author disc, which is in constant use.

However, there are problems. The major one is in recording student answers in printed form. In order to do this resort must be made to printing the answers from a text file recorded in Apple Pilot but printed using Apple Pascal. It is not possible – yet – to print a hard copy of a Pilot lesson as it is running.

I hope that none of my comments put off any potential Pilot user as it is a most valuable and flexible tool available to CAL authors. – **Max Young, Nuneaton.**

Taking the quantum leap

I WOULD like to comment on Mr L. Gazzard's letter in January Windfall, and Max Parrott's reply to him. How many times I've said exactly the same thing when frustrated by a seemingly incomprehensible line of text in the manuals (or elsewhere for that matter).

The fact that the Apple manuals are supposed to be good compared with the manuals of other products only goes to show what a load of rubbish the others must be!

The step from the tutorial to the reference manual is a quantum leap, to say the least. The pity of it is that there should have been a book in between, which goes on to explain in more detail the how, what, when and where of it all.

Actually, I feel sure that there's a missing link somewhere that someone will discover – which will explain all the grey areas and make the finder a millionaire overnight.

As for PEEKs and POKEs, this is indeed a nebulous subject. How many are there for example? All right, I know that you can POKE into any location in memory (except ROM), but how many locations POKEd actually respond by doing or causing something to happen? And does this vary with what is POKEd in?

I know from the Apple Users Guide (by Poole, McNiff & Cook) that with some POKEs only some registers are affected, and that externally there is no visible effect(?).

Now presumably this is very handy to someone who knows what he is doing and wants to jiggle with contents of registers, but to the average Joe who is trying to learn, and is probably blissfully unaware of the existence of registers, the effect cannot be detected and so the assumption would be, "Oh well, that doesn't do anything".

Alternatively, if it does "bomb" the program, one could only say "Better not do that again" without actually discovering WHY it clobbered the program.

It is a struggle to find out how it all works, and I agree that by burning the midnight oil some positive results will often occur, but not everything can be discovered this way.

To be able to use, or rather understand how to use, the Apple to its fullest potential, one first needs to be fully versed in the operation of the hardware.

I think what is perhaps the most frustrating part is the feeling of being alone with it all. Rather like climbing the Eiger I should think.

Windfall recommended joining a user group – but relative beginners often feel it would be better to defer joining until some knowledge was gleaned from the manuals (ie don't join yet for fear of making a fool of one's self – after all, the only people who'd be there would be those who already knew what they were doing!). Irrational I grant you, but true nevertheless.

However, please do not take this as criticism of Mr Parrott, but rather as an expansion of the theme struck by Mr Gazzard. I certainly hope he follows up your invitation to submit an article detailing his successes and failures.

I would like to ask, through your columns, if anybody out there has a Seikosha GP-100A printer and knows how to get it printing out lower case (this letter is written with Applewriter1) and graphics.

I've read the little owner's manual that came with the printer but couldn't make any sense of it. I then wrote to the suppliers, and asked them (at the same time asking them to forward me some printer ribbon) and all they did was to supply me with the ribbon. They didn't reply to my query. Thank you for a marvellous magazine – **Gordon Watson, Clynderwen, Dyfed.**

G3JNG calling . .

I RECENTLY read in your fine magazine an article by a "ham" radio operator, I am sorry to say that the copy in question has long gone the round of friends and I am unable to recall the name of the writer, or his call sign.

I herewith enclose for his interest a "ham" disc – a copy that has been circulating around the USA for the last couple of years.

Sorry that there are no instructions, but if you would see he gets this he may find on it the CW code sender that he was seeking. Either way some of the programs should be of some use. – **Donald Deane Gray, G3JNG & VP9D, Devonshire, Bermuda.**

● Your disc has been forwarded to Sean

Overrend, who has also been contacted by hams from South Africa, Switzerland and Germany since the publication of his morse code articles.

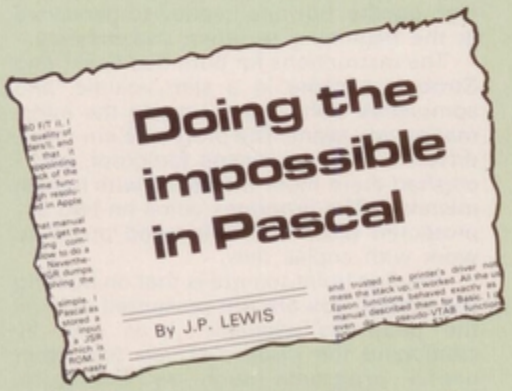
Plea from the Antipodes

I READ Windfall with interest although we are a little behind with getting issues sometimes.

I am a teacher and educational consultant working in the field of computers and would be interested in corresponding with teachers in the UK who are working with computers and technology in the educational area.

I have tried other means (without success) of getting someone to correspond with, and was wondering if you could perhaps publish my name and address to see if I can attract the attention of someone in the UK who is working in the same field.

I work with a variety of computer types, but specialise in Apples and Apple software. – **John Kerr, Bright School, Box 30, Bright, Victoria, Australia 3741.**



I WAS very interested to find the article entitled Doing the impossible in Pascal by J.P. Lewis in the December 1982 edition of Windfall.

I write primarily in Pascal on the Apple II and am keen to be able to print high resolution graphics from within Pascal programs. However, I notice the demonstration program presented in the article uses a unit called PEEKLIB to which there is no reference and with which I am unfamiliar.

I would be most grateful if you would supply me with such a reference or an address by which I might contact the author of the article. – **A.E. Grey, Reigate, Surrey.**

● A method of PEEKing and POKEing in Pascal is to define a TYPE of variant RECORD which is either an integer or a pointer to a byte (one way of restricting Pascal to point to a byte is through a "PACKED ARRAY [0..0] of 0..255;".

Another article by J.P. Lewis, "Poking about in Pascal," deals with PEEKLIB and will be published in a future issue.

Running the Tasc Compiler

RE the letter from Mr A. Lightowler, of Pontefract, in the December 1982 issue of Windfall regarding the running of the Microsoft Tasc Compiler, I also run an ITT 2020 under DOS 3.3 and experienced the same difficulty initially.

The answer is simple. You need a set of Integer Basic ROMs and a 16k language card of some sort.

Remove the existing Palsoft ROMs and replace with the Integer Basic ones, thus turning the machine into an early Apple II.

Then boot an Apple DOS Master disc which will put Applesoft into the language card. Thereafter Tasc will run beautifully.

Of course you then experience some corrupting of the hi-res graphics, but at least the compiler will run. – **Ian R. Matheson, Frimley, Surrey.**

Music on the Apple

I HAVE just bought an Apple IIe with two disc drives from Ram of Bradford.

They gave me your name to contact when I mentioned I was interested in using the computer in conjunction with my Lowrey Holiday Organ. I am new to computing, but understand there are programs and synthesisers which can be purchased.

I also understand there were several good articles in your magazine on this subject. Could you please let me have details. – **P.W. Flowitt, Blackpool**

● Relevant articles were published in September 1981 and October 1981, with reviews in July 1981, December 1982 and February 1982. Another article on Music on the Apple is planned for later this year.

Earth Defence in trouble

I HAVE faithfully copied the hi-res action game Earth Defence, but I have experienced some difficulty in the loading of the shape table to disc. I "BSAVED EARTH SHAPE, A$0801,L107", and played. Fine for the first game, but after a couple of games the fighters become invisible, but can still shoot at me! If the fighters hit my base more than seven or eight times the screen goes to the victory display. There is no way you can lose. I listed Earth Shape and discovered the following changes from the listing I entered on page 65 of the July '82 issue: A line "8" with "F8" on it; lines 0801 to 0810 were correct but line 0818 there was a "Y" on the end followed by the numbers "1983". Lines 0820 to 0908 were not there.

I noticed on the shape table listing in Windfall that there was a multiplication sign for the cursor (I did not get this). Is this the problem?

On the subject of games I typed the program "Humpty Dumpty" in, ran it, and discovered the bricks were falling only from the far left column! Even from blank spaces! Why? – **Adrian Walker (age 13) Reigate, Surrey.**

● In answer to your two queries on games problems, I should like to answer the second first as it is easier – I hope!

The bricks are drawn in lines 130 and "undrawn" in line 190. From these it is clear that which column is selected depends on X1, and how far down the screen it is drawn depends on Y1.

Now the bricks are falling, which suggest that Y1 is okay but only from the left hand column, which suggests that X1 is not being changed.

The value of X1 is set in line 50 which is

```
50 X1=F0+J*E1
```

and I suspect that it is here that the problem lies. Presumably F0 is okay because the bricks are falling straight down. J is likely to be okay which leaves E1. I suspect that you have typed E1. Now the Apple will treat this as a variable with value 0, and so X1 will never change. Try it and see, also check line 440 to see if E1 has been defined there. (It has value 18.)

If this doesn't solve the problem then it must be in the value of J, which is set in line 20. You will have to check that the variables are E, B0 and O (letter 'O') and that these were set correctly in lines 430 and 440.

On the second problem I'm really at a loss to know what is happening. If you are producing a dump of the shape table *via the monitor* then I don't see how you can get a line 8 or the Y "1983" and miss lines 820 onwards.

However, your comment about not seeing * for the prompt character suggests that you weren't in the monitor. If this is so then I'm absolutely amazed that you see anything even resembling a shape table.

I'm so fascinated that I'm enclosing a disc with these games and a few others from *Windfall's* past issues – **Max Parrott.**

STROBE 100

High quality graphics, but the learning process is not entirely painless

By PETER GORRY

A PICTURE is worth a thousand words they say, and this is never more true than when presenting numerical data. Be it business or scientific, a table of numbers conveys very little information without time-consuming scrutiny.

Fortunately packages are now available that will produce a variety of visual representations of such data – graphs, bar charts, pie charts, with varying degrees of ease and sophistication. Unfortunately an image on the screen is only half the battle. One also needs hard copy. Most printers will produce a screen dump to provide a direct copy of the screen, but for professional results and high resolution a digital plotter is necessary.

The number of plotters for the Apple seems to get larger every day, with a sometimes baffling array of facilities offered. The Strobe plotter from Data Efficiency is one at the low price end of the market at around £576, excluding interface. (The one for the Apple IIe costs an extra £65.)

It is a single pen drum type A4 plotter with no "intelligent" features. Many plotters offer a range of built-in extras such as plotting symbols, line types, circles, rectangles, a character set and shading which are all accessed from Basic by simple PRINT statements.

The Strobe however doesn't have any built-in features and makes use of machine code driver routines, accessed from Basic, to provide these.

The routines do not come with the plotter, so you will have to buy them separately if using the plotter from within your own programs. It can be supplied with an intelligent RS232 interface box, which costs an extra £230.

The fact that the paper is wrapped around a drum means that it is very compact, but one must use the correct size paper or transparency.

It is clear that the busy user, and this must include most business people, will want software already written for the Strobe plotter for immediate use.

Before looking at the software it should be said that the plotter itself is robustly made and behaved perfectly the whole time I had it.

The drum takes 11in x 8.5in paper – which is not quite A4 – and I found some "standard" A4 paper wouldn't stay on the drum. Best results are obtained using a glossy surfaced paper which is available separately, so it is probably best to get this anyway.

The pens are available in four colours, and the pen holder has a built-in thread cutter.

The software offered (for Apple II or III) comprises a two part business graphics package consisting of Bus Graf1 for pie and bar charts with Strobeplot for X,Y plotting. Difplot is for plotting any data in standard DIF format – the best known being Visicalc files – and Strobeview is for organisation flow charts. Finally, there is a graphics screen dump for the Apple II – although this last must be dreadfully slow since it has to do a point-by-point plot of the screen – not to mention the punishment meted out to the poor felt tip.

For the review the plotter was supplied with the business graphics package and a PIK package which allows the Strobe to be used with Apple II Business Graphics.

The Strobe business graphics software unfortunately was not quite of the same high standard as the plotter itself, and it had the air of having been rushed out before being fully completed. To be fair, once mastered it produced plots of very high quality, but one needed to persevere at the beginning to attain this mastery.

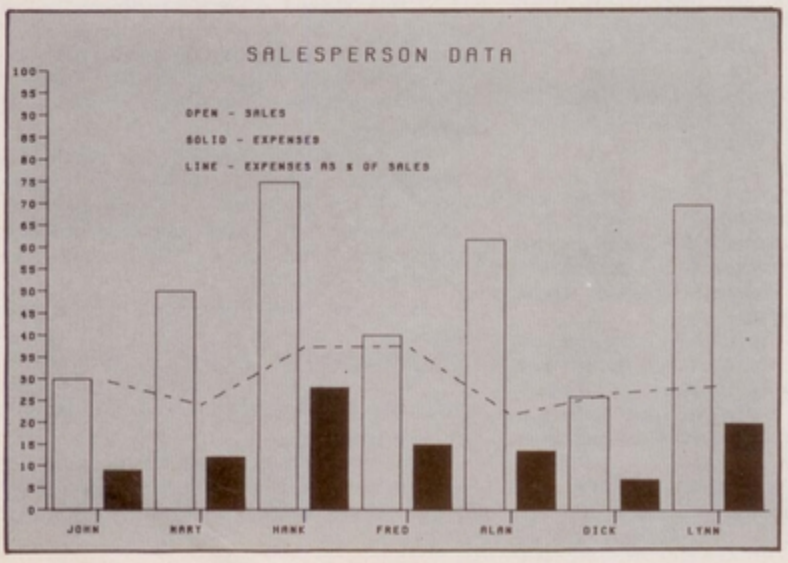
The instructions for both Bus Graf1 and Strobeplot come in a slim volume, and sometimes don't quite contain the information you want. The programs are menu driven but by no means foolproof, and I crashed them more than once with honest mistakes. The programs come on two unprotected discs and it is good policy to work with copies only.

The first point to note is that on booting the system you are not presented with all the programs available. It is only by cataloging the discs that you find other useful programs such as Configure, Digitize and Typer which are not mentioned elsewhere.

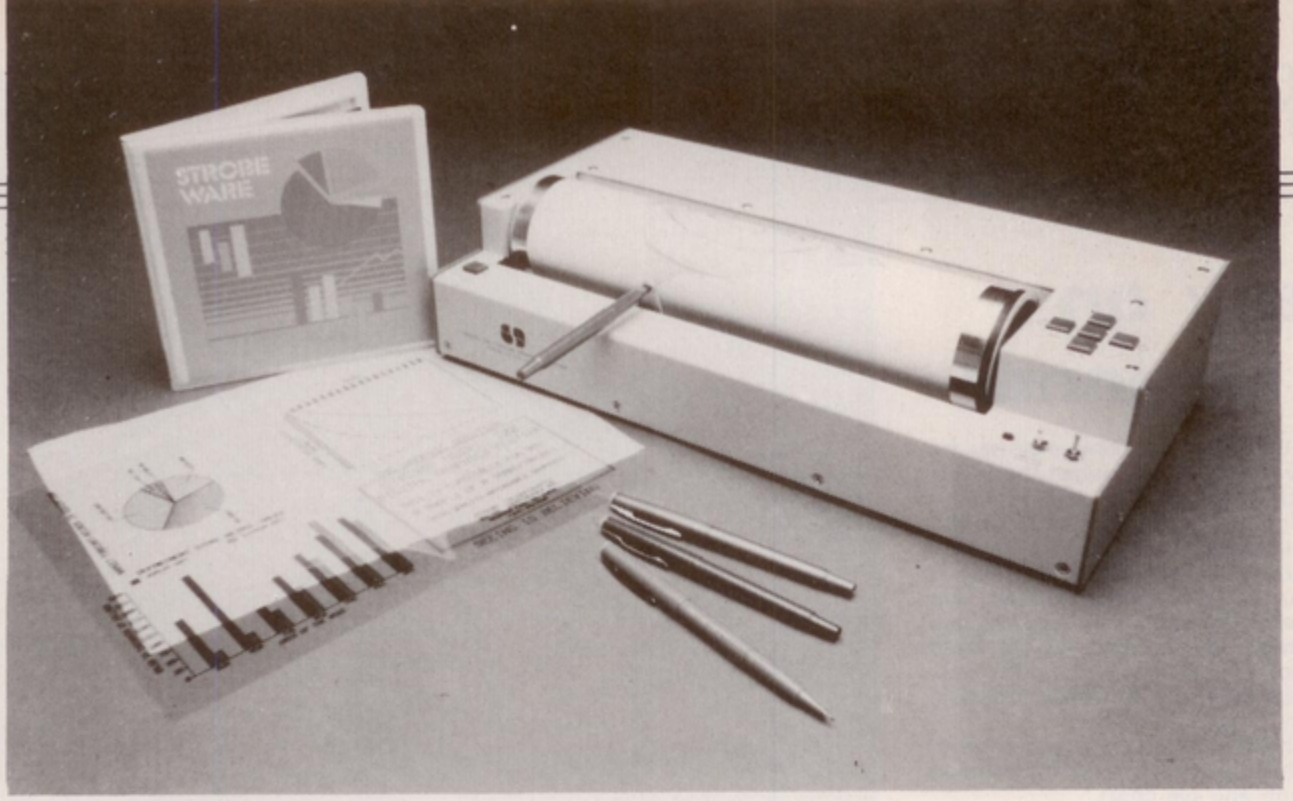
The discs are configured for the interface card in slot 3, but since that is where an 80 column card normally sits it is better to use another slot – you must for Apple Business Graphics anyway – and run the Configure program for that slot. The programs on Strobeplot are in Basic, but several on Bus Graf1 are in compiled form.

The main point to note is that these are purely plotter programs. They do not produce graphics on the screen. So the only way to see if the result is acceptable is to plot the graph. This can be a very time-consuming process when learning how to use the package.

A major source of irritation I found was that both Strobeplot and Bus Graf1 are written for a single disc drive only. Since the package is aimed at the business user,



Apple Business Graphics was used for this sales data chart



The Strobe 100 plotter

this really is an unnecessary restriction. The consequence is that one must constantly swap discs in and out of the one drive if data is on a different disc to the programs (lack of disc space rapidly makes this necessary).

Bus Graf1 at least gives reasonable prompts, but Strobeplot often has to be outguessed. This is made worse by the fact that disc error trapping is rudimentary and often allows the program to terminate with an error code and cryptic message which is even less helpful than the usual DOS message.

The codes turn out to be the DOS error codes (DOS manual, Page 114) although it doesn't say so. I discovered this in my first minute of using Strobeplot. After booting with the master disc I started following the example only to have the program crash within a few instructions. This was due, it transpired, to the master disc being write protected and the program trying to write to it. At least DOS would have told me directly!

It's a shame that the programs are marred by this poor interface with the user because the programs themselves work very well. I am sure that given a bit of practice one would soon get used to the way the system works and such crashes would cease to be a problem. However, good software shouldn't allow them in the first place.

Well, these gripes aside, what do you get for your money? I'll take Strobeplot first. This is a package for performing X,Y type graphs and is compatible with Appleplot files. It works quite independently of Appleplot, which provides screen display first.

The package divides a graph into two basic units. The first is the data itself and a data creation program allows one to create, update and perform simple edits on the data file. A single data file can contain points for up to eight lines although the first two are reserved for Appleplot. This part is simple and straightforward to use, although the editing facilities are not very powerful.

The second element of the graph is the options file, which contains all the extra information needed to plot the graph. This includes scales, divisions, labels, titles, line types, plotting symbols and axis types.

Everything can be set by the user, but there is an auto facility which prompts with a default answer to each question and is generally quite acceptable. The axes can be linear or logarithmic, and the points may be plotted in a variety of symbols and/or line types. The options file can also be edited.

With both the data and options file created, plotting is very simple with the chance to change pens mid plot if desired.

Bus Graf1 is a package for producing bar graphs and pie charts. Many of the component programs are in compiled form and if you crash or exit the program it suggests booting the system again. Since the compiler was obviously Tasc I found typing & RETURN was normally all that was needed to set off again.

One has a choice of two orientations for the graph and a variable size from one quarter of the page to a full one. I started into the example only to find another problem. The catalog listed in the manual is not what greets you on cataloging the disc – and what's different are the files for the demo! The files Bartest and Pietest seem to have become plain Test.

The bar graph program is easy enough to use, but I never realised before just how much information one needed to plot one. I felt like I'd been through the Spanish Inquisition at the end of the data input.

The data is input as pairs of numbers, but under certain conditions the X values can have days, weeks or months substituted automatically. One or two bars can be plotted for each X value and they can be stacked or side by side with various shading options.

Unfortunately the program goes straight on to plotting rather than giving you a chance to correct silly mistakes first. The bar graph editor only allows certain variables to be altered and really is a bit limited. Most importantly, you can't add more bars! Since the files are ordinary Text files I found Applewriter II just as easy to use as an editor once I knew the file format.

The pie chart program has a similarly exhausting data input, although here an auto mode can greatly reduce the work required. The pie segments can have an almost infinite set of shading types and may be offset from the centre by variable amounts. The resulting chart is well drawn and neatly labelled. One can choose to change pens for various slices to create a multicolour display.

The pie chart editor again doesn't let you change all variables. There is an error in the program which caused me considerable frustration. It asks: "Do you want to centre your pie chart (Y/N)?". Unfortunately Y means No and N means Yes to the program.

Finally extra text of various sizes and orientations can be put onto the graphs using the Typer program. This doesn't save anything to disc, it is purely a way of typing from the keyboard to the plotter – but useful just the same.

Summing up then, the end results of the package are professional, high quality graphics and reasonably easy to produce, but I wouldn't say the learning process was entirely painless.

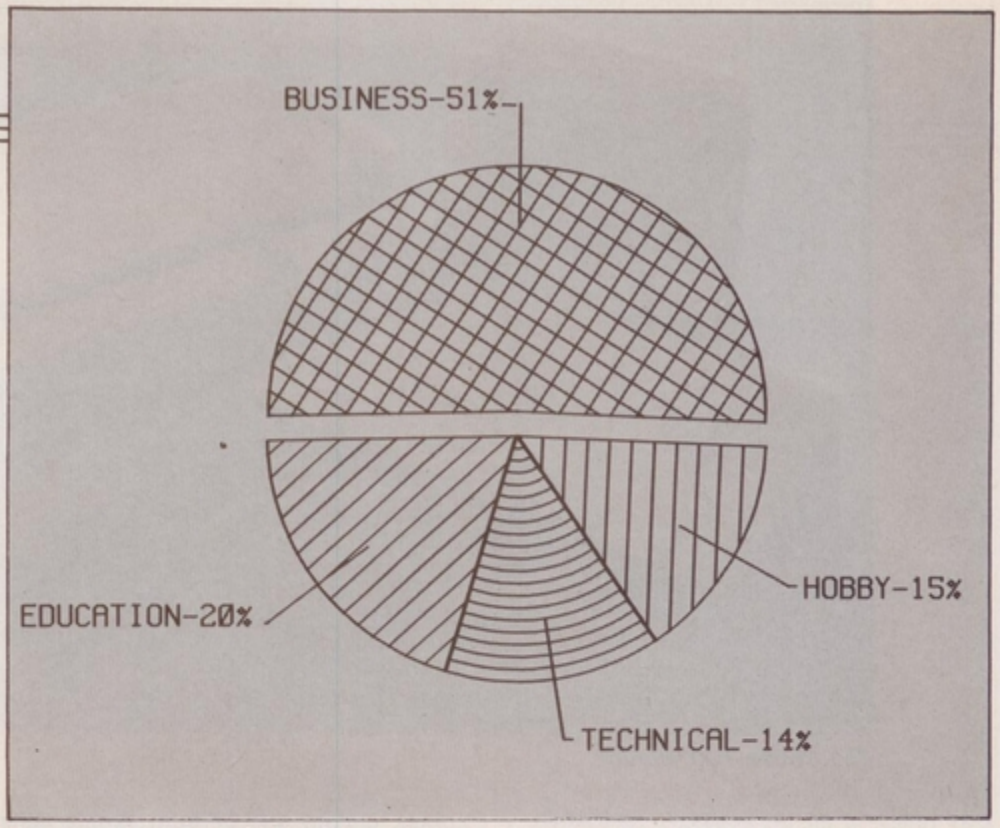
Something which I enjoyed a lot more was the fact that with the PIK system Apple II Business Graphics (ABG) can be configured to drive the Strobe plotter. Although PIK can be purchased it is a once-only requirement, and normally your dealer would configure the system for you when buying it.

The final verdict must be that the plotter/software offers good basic graphics, hard copy capability and represents fair value for money. I think however that the plotter will see some fierce competition from multipen intelligent plotters in that price range in the near future.

● *Next month Peter Gorry reviews Apple Business Graphics.*

THE distributers of the Strobe Plotter, Data Efficiency, say: "The huge market demand for the plotter resulted in development time being reduced. The manufacturers are aware of the bugs mentioned in the article and new improved software with enhanced features will be available shortly."

STROBE 100



The main interests of Windfall readers: a pie chart created from a recent survey

Easy on a beginner

By MICHAEL NEWSOME

THE first time I had ever seen a plotter, let alone operated one, was when the editor suggested I should use the recently-arrived Strobe 100 to plot some useful Windfall statistics.

It sounded a formidable task but it turned out to be incredibly simple. The plotter itself was neat and smart, and has the minimum of controls. All the hard work is done by the Apple under the control of the Business Graphics program, written by David Takahashi.

On switching on you are shown a menu asking which options you want, including a bar graph and pie chart.

I opted for the pie chart. It took 35 seconds for the program to load and then I was asked which scale I wanted. I was given two choices – half size and full size.

Then I was asked if I was accessing an old file or creating a new one, and finally if I wanted "manual" or "auto" data entry.

"Auto" sounded easiest so I picked that. I was presented with an "Auto Create Scratchpad" with three columns for label, amount and percentage. Not having the percentage of the figures I wanted to enter I decided to leave that for the Apple to work out for me.

My first effort was to produce a pie chart showing the proportion of overseas readers of Windfall in different parts of the world.

I entered five labels – for North and South America, Africa and the Middle East, Europe, Asia and Australasia. Despite a note that a label could have up to 15 characters the program would only accept 13 so for my second label I had to settle for "AFR & M. EAST".

Then I entered the total number of copies of Windfall that go to these areas.

I was next asked for the kind of shading I preferred – solid, Strobe-generated or blank. I decided to see what the Strobe would come up with. Finally I was invited to enter a title of not more than 25 characters.

I was now ready to produce my first business graphics, and it was time to turn to the hardware side of the operation.

Although I had never seen a plotter in use before, I found the manual was not really necessary. It was obvious how to fix the paper on the cylinder and how to screw the pen in the holder.

The instructions on the screen told me all I needed to know after that – move the pen to the lower left corner of the page, check that the motor release switch was off and the pen switch was in the down position. Then hit the start/enter button.

The moment I did this the plotter sprang into life. The pen shot towards the centre of the page and immediately started drawing the outline of the first segment and then shading it. The other sections followed, each given a different style of shading, and then the labels were drawn.

The last touch was to draw the title, which was performed twice, the second time slightly off centre to give a more bold appearance. The whole operation took seven minutes.

Having successfully completed the course without any hitches I decided to be more ambitious with my next pie chart and try the manual mode.

This time I wanted to produce a chart plotting the results of a survey we had carried out to find out the main interests of a cross-section of Windfall readers.

I found only two major differences between the two modes. I was allowed to offset any of the slices away from the centre, enabling them to stand out from the rest of the pie – I could choose any distance from 0 to 20.

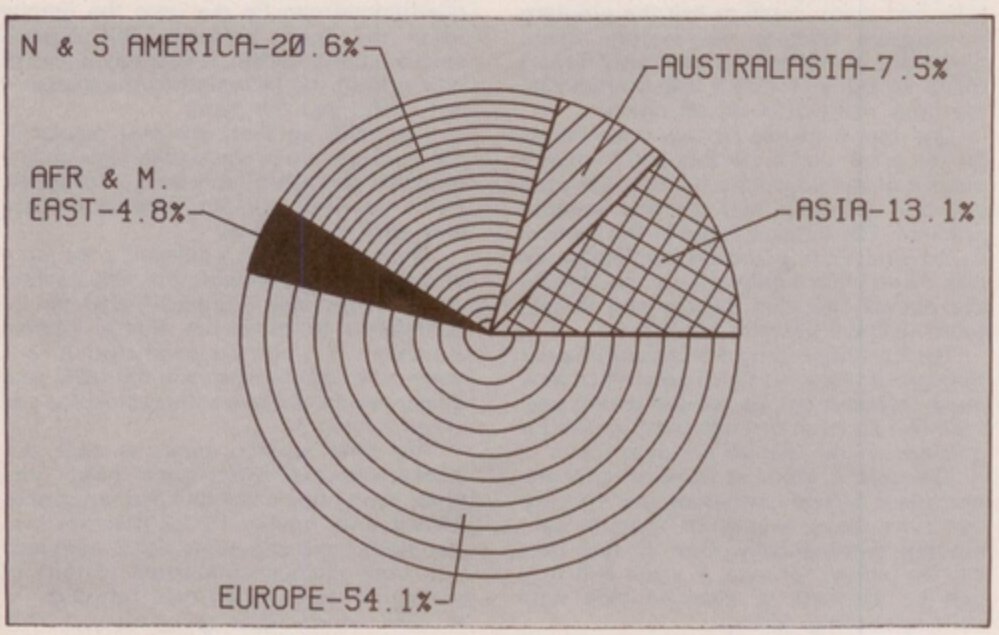
I could also decide the shading parameters. The options were straight lines, arc shading or no shading at all.

I could also specify how far apart I wanted the shading lines (any number between –.25 and –.01) and the angle (between –180° and +180° relative to the x-axis).

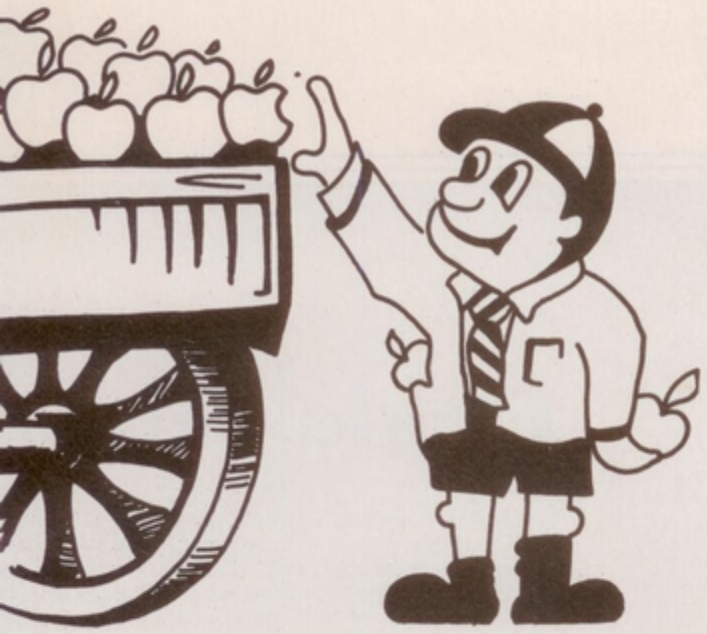
To get solid slices I had to input –.01 to the shading parameter prompt and then 0 to 90 to the shading angle prompt. I could also alter the pen colour for the different slices, or for the labels or the title.

My pie charts turned out just as I wanted them to. Any complaints? Yes – the manual, which makes what is really a very simple operation sound terribly complicated.

But then the Strobe is not unique in this respect. Badly written, carelessly presented manuals are all too common in the micro business.



Pie chart showing Windfall's overseas readership divided into continents



Applecart

Monthly review of
Apple in education

Make it CAT, not CAL

By J.P. LEWIS

ONE of the biggest problems with computers in education at present is that the people with the right ideas aren't in the right places. The result, in my opinion, is that almost all commercial computer assisted learning programs are labour intensive, too long, too complex and too boring.

Almost all the "good" programs I have seen so far suffer from two major defects. First they simply tend to replace the tutorial book, ie they churn out some information, then ask a few questions to see if you've got the message. From this point onwards even the very best (most expensive?) program is limited in its follow-up.

Secondly, they tend to do far too much in one go. A prime example is a program I saw recently which covered all types of matrix transformations (the syllabus I teach spreads this topic over a three year period). The results on the screen were very impressive, but the program was awkward and tedious to handle, and even the author got lost twice.

I would like to present a different method of applying computers to the classroom, based on four principles:

☐ First, learning from a computer by sitting at it and typing away is only any good if you are learning about computers or typing.

☐ Second, a computer can't yet offer the flexibility of response to a pupil's understanding that a person can.

☐ Third, the program size should match the lesson length.

☐ Fourth, the average teacher doesn't like using someone else's program in case it traps him and makes him look stupid in front of the class.

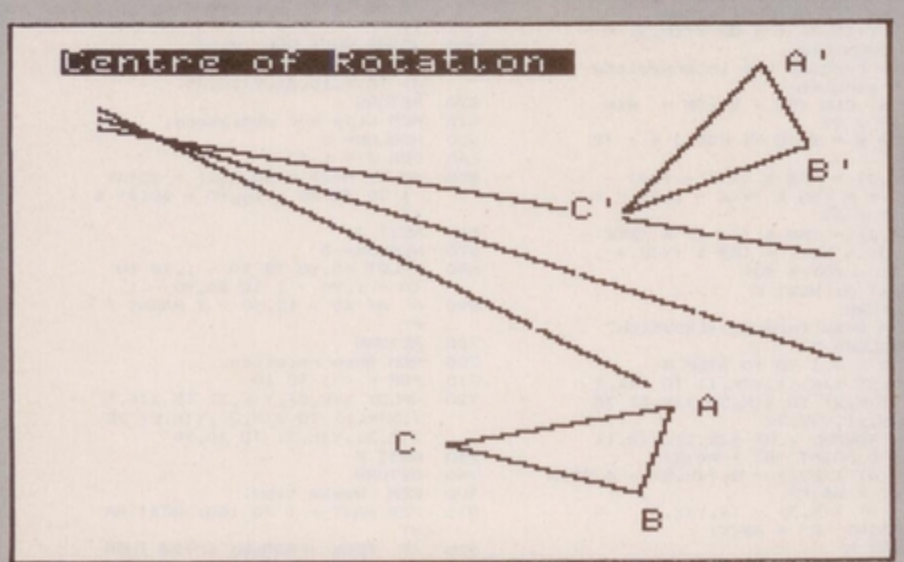
If you follow these lines, the resulting programs are short, totally idiot-proof, work purely as demonstrations, and are designed to get one or two points only across to the class.

Rather than carry on with generalities, I present a program I wrote for third and fourth year maths pupils to demonstrate how to find centres of rotation using the method of perpendicular bisectors or mediators. For simplicity, the object rotated is a right-angled triangle.

This program took about two hours to write, and I've copied various routines from it into other programs to demonstrate such things as glide reflections, combining reflections, combining rotations, etc.

The program is projected onto a 22in colour monitor at the front of the class, and is controlled by a teacher who does nothing more than start the program running, then stand a few feet from the machine using the game control to make the program work through the different steps. His whole attention can be on the class asking, or answering, questions.

The traditional method of getting this particular



Program interrupted at line 210. The picture has been distorted slightly by the screen-dumping routine.

From Page 65

lesson across is to use a lot of chalk and hand-waving, or to use an overhead projector with several carefully-prepared transparencies. The computerised version is an improvement because its demonstration is "obviously true", and it can do half a dozen different examples in as many minutes.

Two points about the program. It was written by a maths teacher for a particular topic, so the geometrical and matrix methods used to get certain results may appear incomprehensible, or unnecessarily long-winded and inefficient, to other users. Secondly, the H/R LABELS file mentioned in line 20 is a machine code program linked to Applesoft by the ampersand hooks (lines 100, 460 etc.) to write strings anywhere, at any scale, on the hi-res screen.

Unfortunately this routine was written by a pupil who has gone commercial, so I can't supply a listing. *(A program which will do this, entitled "Stringing along the hi-res pages," written by Max Parrott, will be published in next month's Windfall – Editor.)*

For reference: (X0,Y0) is the centre of the rotation and TH the angle (30 to 60 degrees) of rotation.

The centre and angle are chosen at random, as are the first two points on the triangle. Lines 280-300 ensure that the triangle is right-angled.

Lines 330-340 convert a matrix multiplication method for rotating TH degrees about (X0,Y0) into Basic.

The purpose of SC(J), calculated in line 540, is to make the mediators pass through, rather than stop at, the centre.

Fickle finger·

EXAMPLE II adds to Example I – which appeared in last month's issue – and incorporates a few necessary amendments, such as adding the characters "/" and "." to the set of valid characters.

Examination of the date validity check subroutine (at line 2000) shows that even when you've checked that the date consists only of figures and the slash (/) symbol, you still need to check that the figures represent reasonable numbers. This routine rejects any month number outside the range 1 to 12.

To check that the day part of the date entered is compatible with the month part, a check must be made against a table of days in each month. This can be done in at least two ways. The most obvious way is to place the table of days in an array and then to check the day part of the date against the appropriate element of the array, eg:

```
2040  DATA  31,28,31,30,31,31,30,
      31,30,31: REM  DAYS IN EACH
      MONTH
2042  DIM DM$(12)
2044  FOR I = 1 TO 12: READ DM$(J
      ): NEXT J: REM  READ DAYS IN
       EACH MONTH
2090  IF DAY$ <  = DM$(J) THEN 21
      30: REM  CHECK DAY IS BELIEV
      ABLE
```

The second method involves using MID$ to pick the correct two characters, representing the days in

```
10  REM    J.P.Lewis
20  PRINT "BRUN H/R LABELS"
30 A$(10) = "'"
35 PADDLE = 49249
40  DEF  FN A(X) =  INT (X *  RND
    (0.3) + 1)
50  TEXT : HOME : PRINT "  Progra
    m control is by pressing BTN
    (0)"
60  GOSUB 245: REM  Setup
90  HGR2
100  &  INVERSE : AT 0,0 PRINT "C
    entre of rotation"
110  GOSUB 425: REM First frame
120  GOSUB 900: REM  Wait
140  FOR J = 1 TO 3
150  GOSUB 505: GOSUB 425: REM  O
    ne construction and refresh
170  GOSUB 900: REM  Wait
180  NEXT J
190  GOSUB 625: GOSUB 425: REM  W
    ipe mediators and refresh.
210  GOSUB 900: REM  Wait
220  GOSUB 705: REM  Rotate
230  GOTO 60
240  END
245  REM  Sets up 'Random' situat
    ion.
250 YO = 20 +  FN A(35):XO = 14 +
     FN A(30)
260 X(1,1) =  FN A(50) + 120:Y(1,
    1) =  FN A(30) + 150
270 X(1,2) = X(1,1) +  FN A(20):Y
    (1,2) = Y(1,1) - 20 -  FN A(
    10)
280 SC = 1.5 *  RND (0.2) + 1.0
290 X(1,3) = X(1,1) +  INT (SC *
    (Y(1,2) - Y(1,1)))
300 Y(1,3) = Y(1,1) +  INT (SC *
    (X(1,1) - X(1,2)))
310 TH = (30 +  FN A(30)) / 57.3
315  REM Calculate last position
320  FOR J = 1 TO 3
330 X(10,J) = ( COS (TH)) * (X(1,
    J) - XO) + ( SIN (TH)) * (Y(
    1,J) - YO) + XO
340 Y(10,J) = ( COS (TH)) * (Y(1,
    J) - YO) + YO - ( SIN (TH)) *
    (X(1,J) - XO)
350  NEXT J
355  REM Pick new triangle if thi
    s is off edge of screen.
360  IF Y(10,3) < 4 OR Y(10,2) <
    4 THEN 310
365  REM Produce the intermediate
     triangles.
370 CS =  COS (TH / 9):SN =  SIN
    (TH / 9)
380  FOR K = 2 TO 9: FOR J = 1 TO
    3
390 X(K,J) = (CS * (X(K - 1,J) -
    XO)) + (SN * (Y(K - 1,J) - Y
    O)) + XO
400 Y(K,J) = (SN * ( - 1) * (X(K -
    1,J) - XO)) + (CS * (Y(K - 1
    ,J) - YO) + YO)
410  NEXT J: NEXT K
420  RETURN
425  REM Draw initial situation.
430  HCOLOR= 3
440  FOR K = 1 TO 10 STEP 9
450  HPLOT X(K,1),Y(K,1) TO X(K,2
    ),Y(K,2) TO X(K,3),Y(K,3) TO
    X(K,1),Y(K,1)
460  &  NORMAL : AT X(K,1),Y(K,1)
     + 5 PRINT "B" + A$(K)
470  &  AT X(K,2) + 6,Y(K,2) - 4 PRIN
    "A" + A$(K)
480  &  AT X(K,3) - 14,Y(K,3) - 4
     PRINT "C" + A$(K)
490  NEXT K
500  RETURN
505  REM Construct a mediator.
510  HCOLOR= 1
520  HPLOT X(1,J),Y(1,J) TO X(10,
    J),Y(10,J)
530 M(J) = (X(1,J) + X(10,J)) / 2
    :N(J) = (Y(1,J) + Y(10,J)) /
    2
540 SC(J) = (N(J) - YO) / (M(J) -
    XO)
570  GOSUB 900
580  HPLOT M(J) + 30,N(J) + SC(J)
     * 30 TO XO - 14,YO - SC(J) *
    14
600  GOSUB 900: REM  Wait
610  HCOLOR= 0: HPLOT X(1,J),Y(1,
    J) TO X(10,J),Y(10,J)
620  RETURN
625  REM Wipe out mediators.
630  HCOLOR= 0
640  FOR J = 1 TO 3
650  HPLOT M(J) + 30,N(J) + SC(J)
     * 30 TO XO - 14,YO - SC(J) *
    14
660  NEXT J
670  HCOLOR= 3
680  HPLOT XO,YO TO XO - 1,YO TO
    XO - 1,YO - 1 TO XO,YO - 1
690  &  AT XO - 12,YO - 2 PRINT "
    P="
700  RETURN
705  REM Show rotation.
710  FOR K = 1 TO 10
720  HPLOT X(K,3),Y(K,3) TO X(K,1
    ),Y(K,1) TO X(K,2),Y(K,2) TO
    X(K,3),Y(K,3) TO XO,YO
730  NEXT K
740  RETURN
900  REM  Waste time.
910  FOR WAYT = 1 TO 100: NEXT WA
    YT
920  IF  PEEK (PADDLE) < 128 THEN
    920
930  RETURN
```

proofing educational software

This is the second part of R.A. MOULD'S article describing ways of producing user friendly programs. The first part dealt with idiot proofing the INPUT command and can be found together with a program listing on Pages 65 and 66 of the March issue of Windfall.

the appropriate month, from a string containing the number of days in each month, eg:

```
2040 DM$ = "312831303130313130313
     031": REM  DAYS IN EACH MONT
     H
2090  IF DAY$ <  =  MID$ (DM$, VAL
     (MN$) * 2 - 1,2) THEN 2130: REM
      CHECK DAY
```

If you wish to check if the 31st day of the fourth month is valid, proceed as follows:

Firstly, identify which pair of characters in DM$ represents the days in the month you are checking. In this case they will be the seventh and eighth ("3" and "0"). The general expression for this is VAL(MN$)*2–1. (MN$ must be converted from string to number format, using VAL.)

Then extract these two characters from MN$ using MID$ and assign them to DM$.

Now check DAY$ against DM$.

In this example, DAY$=31 and extraction of the seventh and eighth characters using MID$ gives a value of 30. DAY$ is greater than 30, therefore the date (31st April) is invalid.

Similar range checks can also be applied to the year, eg:

```
2080  IF  VAL (YR$) < 82 OR  VAL
     (YR$).83 THEN 2100
```

You may have noticed that in both Examples I and II, backspace and retype are disabled. This means that there is no way that an incorrect character can be corrected, other than by retyping the complete date after it has failed the validity tests. However, merely by adding the following lines to either example, backspacing (but not retyping) can be accommodated:

```
265  IF C$ <  > CHR$ (8) THEN 29
     0: REM  BACKSPACE CHAR.
1005  IF C4 <  > CHR$ (8) THEN 1
     010
1006 ST$ =  LEFT$ (ST$, LEN (ST$)
     , LEN (ST$) - 1): RETURN : REM
      BACKSPACE ONE CHAR.
```

Allowing for use of the retype key is much more complex and hardly worth the effort, in my opinion. If it is important that retyping be allowed for, it's worth considering entering the complete date on the screen and then reading the screen to do the date validation. Example III illustrates this method.

An important point to note is that the Ascii code read back from the screen must have 128 subtracted from it before any comparisons are made with the normal keyboard characters. The subroutine starting at line 4000 shows how a character can be read from the screen provided its row and column numbers are known. Again, the top left hand corner of the screen is row 0, column 0.

The formula in line 4010 is used to calculate the whereabouts in memory of the row number of the characters to be read. The screen buffer starts at memory location 1024. Lines of text do not occur one after the other, however, but are interlaced with each other. Line 1 is followed by line 9, which in turn is followed by lines 17, 2, 10, 18 and so on.

Having calculated the memory address for the first (i.e. column 0) character of the wanted line, it is simple to calculate the actual character position required (i.e. add the column number to this start address).

The golden rule of finger-proofing is "never assume the user will provide 'sensible' input". Always check any input and positively accept it or positively reject it. Honest misunderstandings will always arise, not to mention the mischief maker out to be a nuisance who will do his or her best to crash the program.

It also helps immensely if you tell the user exactly what sort of answer you expect each time you ask for input. And it helps if you specifically tell the user if pressing RETURN is required.

```
10  REM  FINGERPROOFING - EXAMPLE
      2
20  REM  ----------------------
    --
30  REM
100  HOME
110 CV = 5:CH = 5: VTAB (CV): HTAB
     (CH)
120 ST$ = "":C$ = ""
130 OUT$ = "TODAY'S DATE : "
160  PRINT OUT$ + "           ": REM
     DISPLAY MENU
170  VTAB (CV): HTAB (CH +  LEN (
     OUT$)): REM PLACE CURSOR AT
     FIRST DATA ENTRY POSITION
180  REM RECEIVE DATE, CHAR BY CHA
     R (INCLUDING / OR .)
210  GET C$
215  IF C$ =  CHR$ (13) THEN 295:
      REM TRAP RETURN
220 CV =  PEEK (37):CH =  PEEK (3
     6): REM  STORE CURRENT CURSO
     R POSITION
225  VTAB 22: HTAB 1: CALL  - 868
     : REM  CLEAR ERROR MESSAGE
230  VTAB 23: HTAB 1: CALL  - 868
     : REM CLEAR ERROR MESSAGE
240  GOSUB 1000: REM  CHECK FOR V
     ALID CHARACTER
250  VTAB (CV + 1): HTAB (CH + 1)
     : REM RESTORE CURSOR TO DATA
      ENTRY POSITION
260  PRINT C$;
270 ST$ = ST$ + C$: REM  BUILD ST
     RING CHAR BY CHAR
280  IF C$ = "" THEN 210: REM INV
     ALID CHAR - TRY AGAIN!
290  GOTO 180
295  GOSUB 3000: REM  RE-FORMAT D
     ATE
297  IF ST$ = "" THEN 320
300  GOSUB 2000: REM CHECK VALIDI
     TY OF DATE
310  IF ST$ (  ) "" THEN 330
```

Applecart

```
320  GOTO 110: REM INVALID DATE -
      TRY AGAIN!
330  VTAB 22: HTAB 5: PRINT ST$"
      OK"
340  END
1000  REM  CHECK IF VALID CHARACT
     ER
1010 CHARSET$ = "1234567890./": REM
     LIST OF VALID CHARS. ALL OTH
     ERS WILL BE REJECTED.
1020  REM  SCAN VALID CHARS,CHECK
     ING IF CURRENT CHAR IS ONE O
     F THEM.
1030  FOR J9 = 1 TO  LEN (CHARSET
     $)
1040  IF C$ =  MID$ (CHARSET$,J9,
     1) THEN 1120
1050  NEXT J9
1060  VTAB 23: HTAB 5: REM PRINT
     ERROR MESSAGE
1070  IF C$ =  CHR$ (13) THEN C$ =
     "'RETURN'"
1080  IF  ASC (C$) ) 26 THEN 1100
1090 C$ = ""
1100  PRINT  CHR$ (7);C$;" NOT A
     NUMBER - TRY AGAIN"
1110 C$ = ""
1120  RETURN
2000  REM DATE VALIDITY CHECK
2010  IF ST$ = "+" THEN 2120
2030 YR$ =  RIGHT$ (ST$,2): REM
     EXTRACT YEAR
2040 DM$ = "312831303130313130313
     031": REM   DAYS IN EACH MON
     TH
2050  IF  VAL (DAY$) ( 1 THEN 210
     0: REM CHECK FOR ZERO DAY
2060  IF  VAL (MN$) ( 1 THEN 2100
     : REM CHECK FOR ZERO MONTH
2070  IF  VAL (MN$) ) 12 THEN 210
     0: REM CHECK FOR MONTH 13 ET
     C.
2080  IF  VAL (YR$) ( 82 OR  VAL
     (YR$) ) 83 THEN 2100: REM CH
     ECK FOR 1982 OR 1983
2090  IF DAY$ (  =  MID$ (DM$, VAL
     (MN$) * 2 - 1,2) THEN 2130: REM
     CHECK DAYS DATA IS BELIEVABL
     E
2100  VTAB 23: HTAB 5
2110  PRINT  CHR$ (7)DAY$ + "/" +
     MN$ + "/" + YR$ + " NOT A VA
     LID DATE"
2120 ST$ = ""
2130  RETURN
3000  REM RE-FORMAT DATE
3010 DAY$ = "00":MN$ = "00":YR$ =
     "00"
3020  FOR J = 1 TO 3
3030 C$ =  MID$ (ST$,J,1)
3040  IF C$ = "/" OR C$ = "." THEN
     3070
3050 DAY$ = DAY$ +  MID$ (ST$,J,1
     )
3060  NEXT J
3070 DAY$ =  RIGHT$ (DAY$,2)
3080  FOR K = J + 1 TO  LEN (ST$)

3090 C$ =  MID$ (ST$,K,1)
3100  IF C$ = "/" OR C$ = "." THEN
     3130
3110 MN$ = MN$ +  MID$ (ST$,K,1)
3120  NEXT K
3130 MN$ =  RIGHT$ (MN$,2)
3140  IF K (  = 6 THEN 3190
3150  VTAB 22: HTAB 5: REM  PRINT
     ERROR MESSAGE
3160  PRINT  CHR$ (7);ST$;" IN WR
     ONG FORMAT"
3170  PRINT "  USE DD/MM/YY OR DD
     .MM.YY"
3180 ST$ = "": RETURN
3190 YR$ = YR$ +  RIGHT$ (ST$, LEN
     (ST$) - K - 1)
3200 YR$ =  RIGHT$ (YR$,2)
3210  RETURN
```

```
10  REM  FINGERPROOFING - EXAMPLE
     3
20  REM  ------------------------
     --
30  REM
100  HOME
110 CV = 5:ROW = CV - 1:CH = 5:FI
     RSTCOL = CH - 1: VTAB (CV): HTAB
     (CH)
120 ST$ = "":C$ = "":NUMCHAR = 0
130 OUT$ = "TODAY'S DATE : "
160  PRINT OUT$ + "            ": REM
     DISPLAY MENU
170  VTAB (CV): HTAB (CH +  LEN (
     OUT$)): REM PLACE CURSOR AT
     FIRST DATA ENTRY POSITION
175 FIRSTCOL = FIRSTCOL +  LEN (O
     UT$)
180  REM RECEIVE DATE,CHAR BY CHA
     R (INCLUDING / OR .)
210  GET C$
215  IF C$ =  CHR$ (13) THEN 292:
      REM  TRAP RETURN
217 NUMCHAR = NUMCHAR + 1
220 CV =  PEEK (37):CH =  PEEK (3
     6): REM  STORE CURRENT CURSO
     R POSITION
225  VTAB 22: HTAB 1: CALL  - 868
     : REM  CLEAR ERROR MESSAGE
230  VTAB 23: HTAB 1: CALL  - 868
     : REM CLEAR ERROR MESSAGE
240  GOSUB 1000: REM  CHECK FOR V
     ALID CHARACTER
250  VTAB (CV + 1): HTAB (CH + 1)
     : REM RESTORE CURSOR TO DATA
      ENTRY POSITION
260  PRINT C$;
280  IF C$ = "" THEN 210: REM INV
     ALID CHAR - TRY AGAIN!
290  GOTO 180
292  GOSUB 4000: REM    READ INPU
     T STRING FROM SCREEN MEMORY

295  GOSUB 3000: REM  RE-FORMAT D
     ATE
297  IF ST$ = "" THEN 320
300  GOSUB 2000: REM CHECK VALIDI
     TY OF DATE
310  IF ST$ (  ) "" THEN 330
320  GOTO 110: REM INVALID DATE -
      TRY AGAIN!
330  VTAB 22: HTAB 5: PRINT ST$"
      OK"
340  END
1000  REM  CHECK IF VALID CHARACT
     ER
1005  IF C$ =  CHR$ (8) OR C$ =  CHR$
     (21) THEN  RETURN
1010 CHARSET$ = "1234567890./": REM
     LIST OF VALID CHARS. ALL OTH
     ERS WILL BE REJECTED.
1020  REM  SCAN VALID CHARS,CHECK
     ING IF CURRENT CHAR IS ONE O
     F THEM.
1030  FOR J9 = 1 TO  LEN (CHARSET
     $)
1040  IF C$ =  MID$ (CHARSET$,J9,
     1) THEN 1120
1050  NEXT J9
1060  VTAB 23: HTAB 5: REM PRINT
     ERROR MESSAGE
1080  IF  ASC (C$) ) 26 THEN 1100
1090 C$ = ""
1100  PRINT  CHR$ (7);C$;" NOT A
     NUMBER - TRY AGAIN"
1110 C$ = ""
1120  RETURN
2000  REM DATE VALIDITY CHECK
2010  IF ST$ = "+" THEN 2120
2030 YR$ =  RIGHT$ (ST$,2): REM
     EXTRACT YEAR
2040 DM$ = "312831303130313130313
     031": REM   DAYS IN EACH MON
     TH
2050  IF  VAL (DAY$) ( 1 THEN 210
     0: REM CHECK FOR ZERO DAY
2060  IF  VAL (MN$) ( 1 THEN 2100
     : REM CHECK FOR ZERO MONTH
2070  IF  VAL (MN$) ) 12 THEN 210
     0: REM CHECK FOR MONTH 13 ET
     C.
2080  IF  VAL (YR$) ( 82 OR  VAL
     (YR$) ) 83 THEN 2100: REM CH
     ECK FOR 1982 OR 1983
2090  IF DAY$ (  =  MID$ (DM$, VAL
     (MN$) * 2 - 1,2) THEN 2130: REM
     CHECK DAYS DATA IS BELIEVABL
     E
2100  VTAB 23: HTAB 5
2110  PRINT  CHR$ (7)DAY$ + "/" +
     MN$ + "/" + YR$ + " NOT A VA
     LID DATE"
2120 ST$ = ""
2130  RETURN
3000  REM RE-FORMAT DATE
3010 DAY$ = "00":MN$ = "00":YR$ =
     "00"
3020  FOR J = 1 TO  LEN (ST$)
3030 C$ =  MID$ (ST$,J,1)
3040  IF C$ = "/" OR C$ = "." THEN
     3070
3050 DAY$ = DAY$ + C$
3060  NEXT J
3070 DAY$ =  RIGHT$ (DAY$,2)
3080  FOR K = J + 1 TO  LEN (ST$)

3090 C$ =  MID$ (ST$,K,1)
3100  IF C$ = "/" OR C$ = "." THEN
     3130
3110 MN$ = MN$ +  MID$ (ST$,K,1)
3120  NEXT K
3130 MN$ =  RIGHT$ (MN$,2)
3140  IF K (  = 6 THEN 3190
3150  VTAB 22: HTAB 5: REM  PRINT
     ERROR MESSAGE
3160  PRINT  CHR$ (7);ST$;" IN WR
     ONG FORMAT"
3170  PRINT "  USE DD/MM/YY OR DD
     .MM.YY"
3180 ST$ = "": RETURN
3190 YR$ = YR$ +  RIGHT$ (ST$, LEN
     (ST$) - K)
3200 YR$ =  RIGHT$ (YR$,2)
3210  RETURN
4000  REM READ STRING FROM SCREEN
      MEMORY
4010  DEF  FN A(X) = 1024 +  INT
     (X / 8) * 40 + (X / 8 -  INT
     (X / 8)) * 1024: REM CALC CH
     AR POS IN MEMORY
4015 ST$ = "":NUMCHARS = NUMCHARS
      + FIRSTCOL - 1
4020  FOR COL = FIRSTCOL TO NUMCH
     ARS
4030 X =  FN A(ROW) + COL
4060 ST$ = ST$ +  CHR$ ( PEEK (X)
      - 128)
4070  NEXT COL
4090  RETURN
```

DARK STAR SYSTEMS announces . . .

SNAPSHOT TWO

The disc copy card with all the great features of SNAPSHOT, plus:

WIDER COMPATIBILITY: Works with virtually any 16K card.
EASIER TO USE: Just press the trigger on the attached extension cable. Never open your Apple's cover.
Simple 1-2-3 copy procedure. Copies most programs in 30 seconds.

PEELINGS II magazine (Feb 1983) compares SNAPSHOT with Wild Card and Crack-Shot:

"Overall, with one of the supported RAM cards, SNAPSHOT is the best buy."
"The copy procedure is perhaps the easiest and clearest of the three cards."

SNAPSHOT will copy any memory-resident program that runs on the 48K Apple. SNAPSHOT uses your 16K RAM card* to interrupt a running program and dump the entire contents of 48K and registers to an unprotected backup disc. SNAPSHOT backs up programs that baffle nibble copiers like Locksmith without any complex parameter changes or trial-and-error hassle. And SNAPSHOT is still more effective, less expensive and easier to use than its imitators.

- You have full, normal use of your other hardware and software.
- Ideal for debugging or analysing programs.
- Freeze-frame your game! Print the graphics on your printer and resume play.
- Shooting down space invaders and the phone rings? Interrupt your game until later, or tomorrow. Save your high scores!
- Repeatedly interrupt and resume running programs.
- Faster and easier to use than nibble copiers or other copy cards.
- Full monitor capabilities to examine, modify, trace, single-step or disassemble any interrupted program.
- Suspend work with one program while you use another (for instance, interrupt word-processing a letter to look up an address in a database, then resume the letter exactly where you left off.)
- Move protected programs to hard disc or 8" disc; copy several programs onto the same disc.
- List "unlistable" Basic programs; make custom modifications.
- Backups run without SNAPSHOT present; most run without 16K card.

And there's more! Write or ring for complete technical information.

PRICE: £95.00

from your local dealer or Dark Star Systems

Terms: Payment with order. Add 15% VAT. P&P included. VISA/Barclaycard and Am Ex. accepted. Dealer enquiries invited. Foreign: No VAT. Add £2 postage to Europe, £7 elsewhere.
* Apple II or II+ or Franklin.
* One drive and Language Card/16K card required. Works with most popular cards, including Apple, Microsoft, Ramex, Digitek, MPC, RH Electronics, Orange, Franklin, etc. Other brands: specify when ordering. Graphics dump requires graphics interface card and printer.

Dark Star Systems

54 Robin Hood Way, Greenford, Middlesex. UB6 7QNW
Telephone: 01-900 0104

Apple Appeal from Cumana is no windfall!

Cumana Quality Disk Drives sell on sheer performance* for Apple and Apple Compatibles





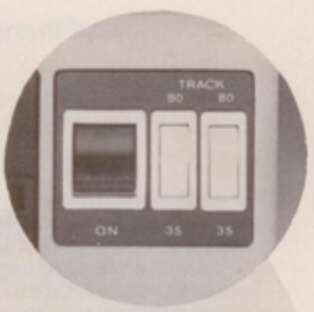
A low cost Apple and Apple look-alike Single Disk Drive . . . a really quiet, dependable unit.

The **AS100** low cost Apple Compatible Disk Drive is silent in operation dependable in performance.

The **AS100** interfaces to Apple II and all Apple II Compatible Micro's. It operates all Apple Software including 1/2 Track Software. Storage Capacity is 143360 bytes at 48 Tracks per inch.

Note the *performance of the **DA 8035** which offers over twice the capacity per drive in the 80 Track Mode. Capacity is 327680 bytes on each drive. Please add VAT to all prices. Delivery at cost will be advised at time of order.

A BIG PLUS! includes SWITCH UNIT for 80 or 35 track use



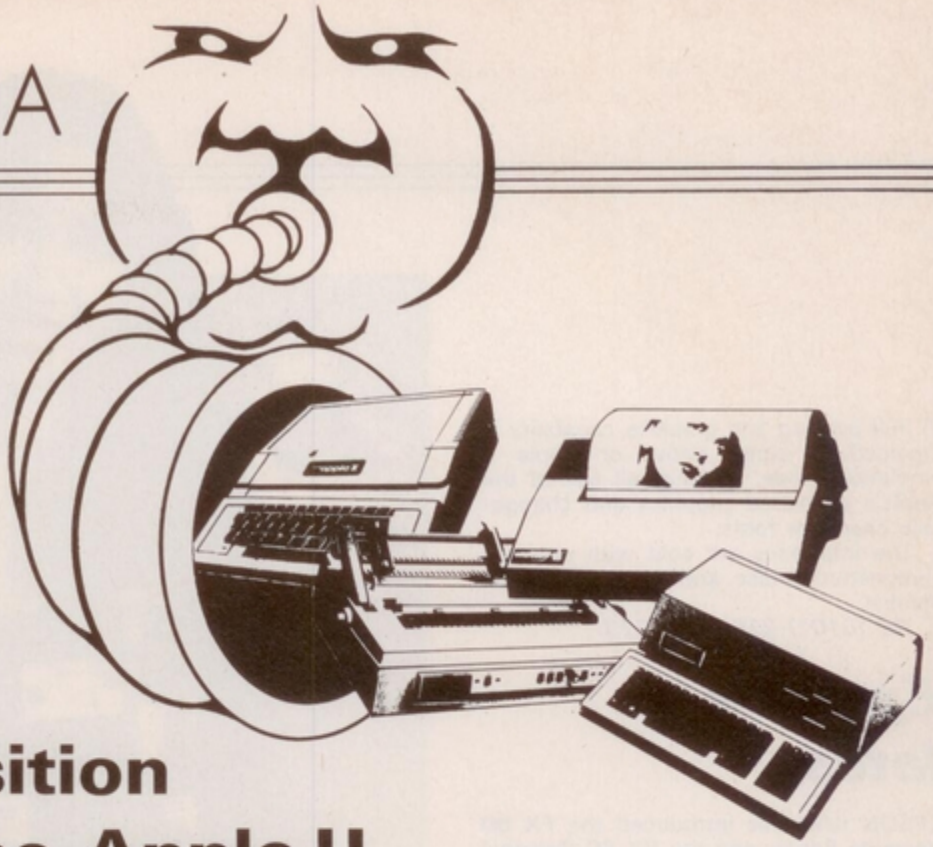


CUMANA LTD

Unit 1, The Pines Trading Estate, Broad Street, GUILDFORD, Surrey. GU3 3BH.
Telephone: (0483) 503121. Telex: 859380.

Apple is the Registered Trade mark of Apple Inc.

DEALER ENQUIRIES WELCOME. WE OFFER GENEROUS DEALER DISCOUNTS



Data acquisition cards for the Apple II

TWO interface cards which offer the Apple II user full data acquisition and control facilities are available from 3D Digital Design and Development for a total cost of £200.

Cards XAD 1 and 2 turn the Apple II into a tool for process control, instrument interfacing, data logging, environmental monitoring, test and instrumentation and calibration control.

The XAD 1 card provides four channels of 12 bit A/D conversion with an integrating converter to provide reliable measurement of plant parameters.

The card also offers four voltage-free SPST relays to operate directly or in slave switching mode in order to control heaters, pumps, fans and solenoids.

When they are not being used for control the relays can be used to provide three more input channels to the ADC.

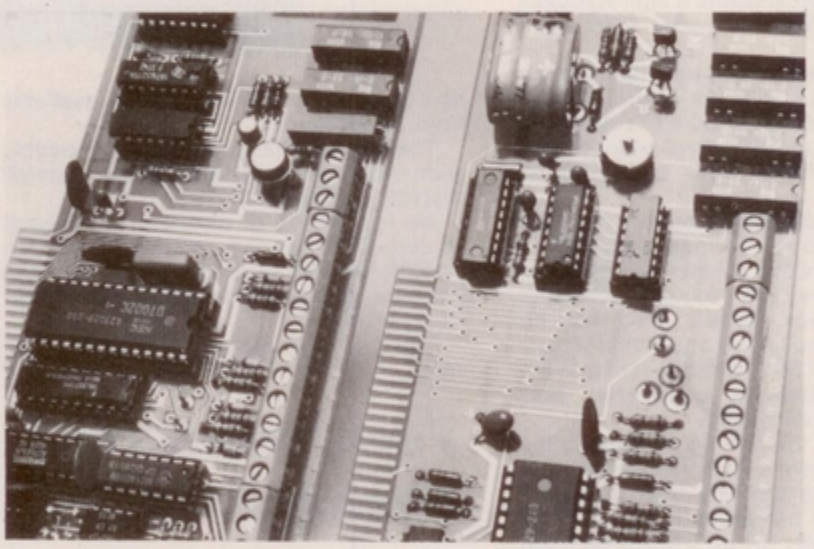
XAD 1 also has a battery operated real time clock and calendar, giving years, months, days, days of the week, hours, minutes, seconds and tenths of seconds.

It can be programmed to interrupt the Apple at 0.5 sec, 5 sec or 60 sec intervals.

XAD 2 offers a 12 bit integrating A/D converter with five input channels. Three are of fixed input range, 0 to 5v, referred to a common analogue ground. Two are for differential inputs, or two wire signals, routed via a programmable gain amplifier.

XAD 2 has two voltage-free SPST relays for direct or slave control functions, addressable from within Apple II programs.

Tel: 01-387 7388.



3D interface cards for the Apple II

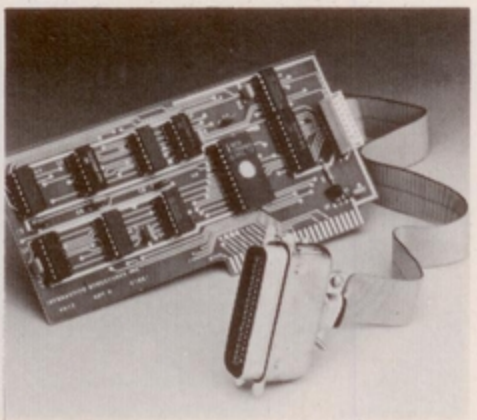
Dual function interface

LATEST videx peripheral for the Apple II Plus and the Apple IIe is the PSIO dual function interface card.

A printer and modem, or any other combination of parallel/serial peripherals, can be individually connected to and controlled by the PSIO.

The new board, claims Videx, is compatible with Basic, Pascal and CP/M operating systems and includes a non-volatile RAM that remembers baud rate configurations and software selectable configuration options. It costs $229.

Tel: (0101) 503-758 0521.



PKASO interface

Hi-res graphics for matrix printers

THE PKASO interface from Interactive Structures adds intelligent text and graphics printing capabilities to the Apple II and Apple III as well as a link between low-cost matrix printers and the Apple III.

Characteristics include full snapshot dump of any screen image, 16 level grey scale printing, user created or software defined characters, and both hi-res and lo-res graphics.

The interface fully supports the Apple, Epson, Okidata, Centronics, IDS, NEC, and C. Itoh printers and is compatible with Apple II languages including Basic, CP/M, Pascal and Assembler.

Using the PKASO system with Apple

→

III, full printing and graphics capability is provided in either native or Apple II emulation mode, making full use of the Apple's expanded graphics and changeable character fonts.

The interfaces are sold with cable, a demonstration disc, and a comprehensive manual.

Tel: (0101) 215-667 1713.

Epson's latest

EPSON (UK) has introduced the FX 80 Versatile Printer and the RX 80 Personal Printer to the British market.

The FX 80, says Epson, meets almost any printing need and sets a high standard in excellence for dot matrix hard copy printers.

Any character or symbol that can be defined in an 11 × 9 dot matrix can be added as part of the FX 80's character set and stored in the 4352 byte bulk storage RAM, which holds 256 user defined characters.

If additional characters are not required the RAM is used as a 3k input data buffer.

Features provided by the 12k ROM include any of the nine program selectable bit image storage modes, which can be used in the same line in any combination.

Among the 136 character styles available are emphasised, condensed, proportional, elite and italic.

Epson says the FX 80 is compatible with the MX series and can be used to upgrade existing systems. Rate of print is 160 characters per second.

Features of the RX 80 include 8k ROM and a printing speed of 100 characters a second. It has two full 96 Ascii character sets plus 11 international character sets and 128 types of characters.

Tel: 01-900 0466.

SSP for the Apple II

ALTHOUGH many small employers – and some large ones – were hoping it would just go away, the Statutory Sick Pay scheme does come into operation this month. SSP is explained in detail in DHSS publication NI. 227 (Employers' Guide to Statutory Sick Pay), which is 60 pages long.

All employers must calculate and pay SSP to their sick employees, and then recover their payments by deducting them from their National Insurance contributions – and there is a fine of £200, plus £20 per day, for failure to keep the required records.

A program which performs the calculation of SSP on the Apple II is available from Hilderbay.

The package is said to be compatible with most computer and manual payroll systems and easy to use.

No knowledge of computers or payroll procedures is needed. Hilderbay says that its SSP will be an incentive to the small business to buy an inexpensive computer as a first step.

The package costs £70. *Tel: 01-485 1059.*



Miss World, Mariasala Alvarez Lebron. The keen of eye may also spot the Epson printer part she is holding. See "Epson's latest".

Temperature check

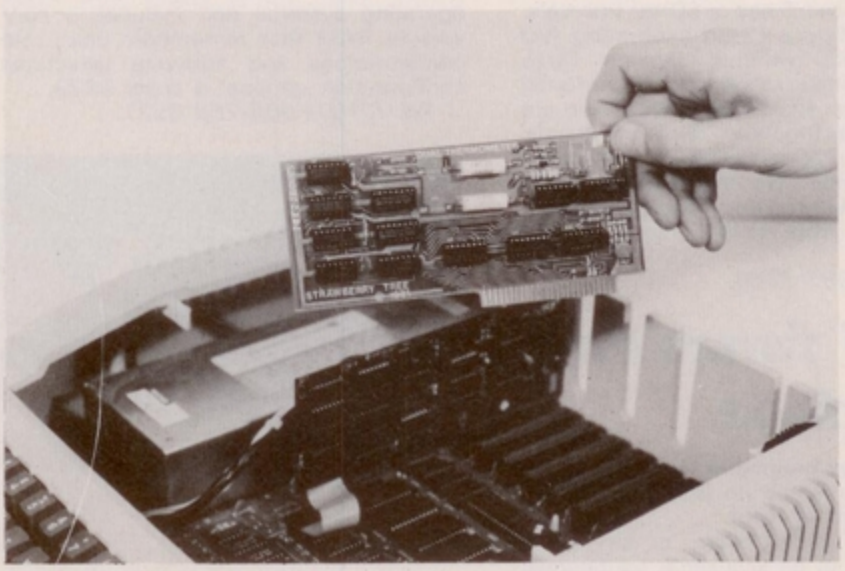
A DUAL thermometer for measuring temperature which is designed to run on the Apple II under Applesoft Basic is available from Hal Computers.

The thermometer comprises temperature probes, interface, and a software package for both domestic monitoring and industrial applications.

The board has two probes for recording differences in temperature. This data, together with time analysis, is stored on disc to be recalled and printed at intervals specified by the user. Alarms can be set to any chosen limit.

The software supports up to seven dual thermometer cards, giving a maximum of 14 probes. Data can be displayed for each individual probe and can indicate temperature in Fahrenheit, Celsius or Kelvin degrees.

The clock can be 12 or 24 hours and temperatures can be stored at intervals



Strawberry Tree's thermometer board

from ten minutes to once a year.

The system, developed by Strawberry Tree, runs on any Apple II with a minimum configuration of 48k RAM, Applesoft Basic and at least one floppy drive. The program is written in unprotected Basic and can be simply customised.

Tel: 0252 517175.

Character designer

A MACHINE code program called through the Applesoft ampersand ('&') hooks, to put text in a variety of sizes onto the hi-res screens, is the Rocon Hi-Text.

Rocon claims that Hi-Text does not just echo the normal TEXT screen onto the hi-res screen. You tell it exactly where you want your text to appear using the normal hi-res co-ordinates.

Lower case is available, using CTRL-A to toggle the output between capitals and lower case. The package, which costs £38, incorporates an Applesoft program to enable users to design their own character set instead of the normal Ascii set.

Tel: 0235-24206.

Long life line of discs

A 17-year warranty is given by Verbatim on its new Optima range of 5.25in and 8in flexible discs.

The discs cost about 45 per cent more than standard types carrying a five year warranty, says British distributor BFI Electronics and are designed for use with computer systems handling important or irreplaceable data such as financial records, research data and security-sensitive material.

The long warranty implies that each disc is guaranteed to perform an average of 70 million revolutions without the signal deteriorating by more than 25 per cent of its original amplitude. This performance exceeds the current industry standards by at least 20 times.

The discs are supplied in plastic boxes which interlock to form systematic libraries and filing blocks.

Tel: 01-9414 066.

How to tell an Apple off

AN interactive, voice-based learning system which enables a user to communicate with an Apple simply by talking to it in any language, is being marketed in the UK by Voice Input.

The voice-based learning system (VBLS) was developed by Scott Instruments of Texas to meet the needs of students in various environments such as business, school, industry and home.

It employs voice-controlled methods basic to all levels of learning in any field to cover tutoring, drill and practice, review and testing.

The system, which runs on an Apple II,

adam SOFTWARE
provides for the
NEWSPAPER RETAIL TRADE
The ADAM NEWSCHAPPY software program

* **operates** on Apple II 48K and Apple IIE 64K
* **floppy disk version** operates with 2 disks and 2 disk drives for up to 1500 customers
* **hard disk storage version** provides increased customer capacity and greater historic recall
* **comprehensive** detailed system applications meeting 'Users' varying needs, covering daily rounds, holiday data, variations in publications required by each customer, automatic customer ledger account maintenance, immediate statement availability, full debtors balance lists, etc. etc.
* **600 publications listed in Program — local and other publications can be added by User.**

End-User price for complete installation approximately £2850-£3150 according to local conditions.

DEMO Program disks, full operating Manual available from

adam SOFTWARE LTD. 107 Whitecross Street, London, E.C.1.
Tel: 01-628 3531/2
DEALER ENQUIRIES WELCOME.

OMNIS FASTER!



OMNIS is written in Pascal and is available for version 4 P-system operating systems. Retrieving of records in all the 10 index fields takes less than 2 seconds, and is even faster on hard disk systems. Restructuring of any records is possible at any time. OMNIS can pass on the information to other programs including the merging or splitting of databases. Easy Menu-based operation with on screen prompting, makes OMNIS both easy and fast in its operation. Telephone Brigit for more details on the features of OMNIS.

BLYTH COMPUTERS
Wenhaston, Halesworth, Suffolk IP19 9DH.
Telephone: (050 270) 371

OMNIS. YOU'LL GET MORE FROM IT!

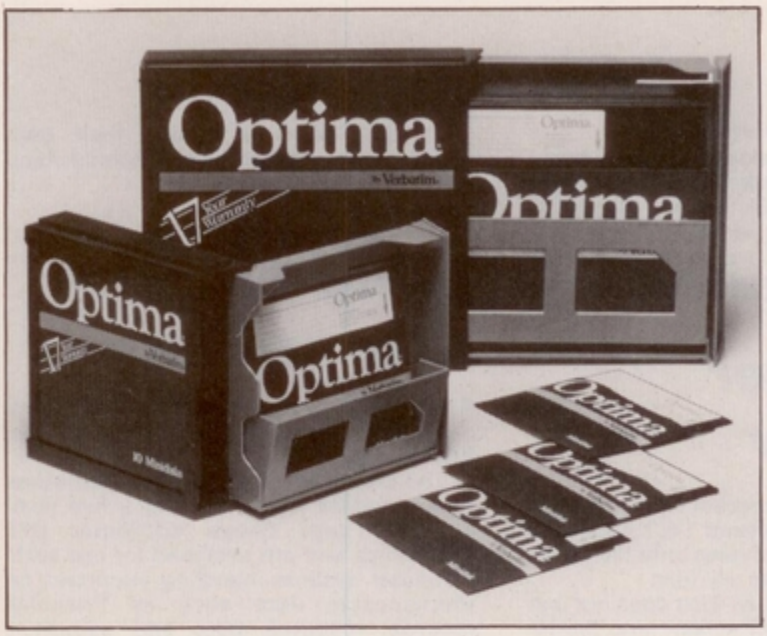
incorporates a microphone, a voice entry terminal and VBLS software.

To prepare a typical lesson, the instructor types each question and its answer into the Apple and each answer is then spoken aloud into the microphone.

As the spoken answer is entered into the computer the VBLS system is "learning" the voice patterns. These patterns will serve as the model for the learner's spoken responses during the study session.

The system can be interfaced to a film projector, audio cassette, or slide projector. Applications include bilingual and foreign language study, technical and management training, pre-college basics, on-the-job skills training, college and university professional programs, remedial studies, and special educational programs for the handicapped learner.

Tel: 0223-276097.



Long-life line from Optima

Tape back-up for Winchesters

A QUARTER inch cartridge tape sub system designed to provide back up for Winchester disc drives has been developed by Perex.

The heart of the Peridata 4510 is the Perex HD6400 drive which has a storage capacity of over 17mbytes a cartridge and which is said to read/write at a tape speed of 30 inches/sec with full read after write and CRC check.

It thus allows back-up data to be recorded in a shorter time and with less effort than the floppy discs normally used for this application.

Perex says the system is of particular interest to Apple III users with the Profile Winchester system as it offers a data storage capacity equivalent to at least 10 of the 5¼in floppy discs used with the system – and thus avoids the need for multiple floppy disc recordings at the end of each working day.

Tel: 0734 751054.

Olympic printer

THE ESW 3000 RO daisywheel printer is claimed by manufacturer Olympia International to be the most economically priced quality printer on the market. The company says the machine, which costs £1,100, will interface with almost every microcomputer and word processor available.

The intelligent ESW 3000 RO prints bi-directionally at up to 50 characters a second with 10, 12, 15 and proportional pitch selections.

Interfaces are available for most other manufacturer's equipment, including Centronics, RS 232 and Qume/Diablo 13 bit parallel.

A range of paper-handling devices is available, including the EZE1 single sheet feeder (£398), which can handle up to 200 sheets of either A4, A3 or A5 paper. A tractor feed is available for £150.

Tel: 01-262 6788.

Cashing in by disc

COMPUTER research and manufacturing company, Eicon Research has brought out a system enabling Apple users to take advantage of the new Bankers' Automated Clearing Services facility.

BACS allows instructions for collection and payment of direct debits, including payroll transfers, to be made direct to a bank on a computer-readable 8in floppy disc.

This eliminates paperwork within a company and its bank, reduces costs, as no cheques or bank credits are used, and is fast.

Software developed by Comley Computer Services for use with CP/M machines writes the 8in discs in BACS format and they are handled by an Eicon FD8 8in drive.

A further advantage is that the Eicon FD8 enables an Apple to interchange data with other machines under IBM 3740, DEC RT11, UCSD Pascal and CP/M operating systems.

The Eicon drive and interface for an existing Apple system costs £1,250. A complete Apple system with Eicon FD8 dual 8in disc drives is around £3,000 and the BACS software is an additional £150.

Eicon also supplies Payman, a complete payroll management system handling up to 8,000 employees written by Comley Computer Services. Payman costs £600.

Tel: 0954 81825.

Access to 64 micros

THE Starnet networking system from C/WP incorporates Contour Winchester discs which can be accessed by up to 64 micros.

The system is based on a 64k processor with direct memory access. It communicates with Apples through flat cables up to 300 feet long, and C/WP claims it has a data transfer rate of 600k a second.

Systems options include a communications "gateway" to other micros or other networks, an internal electronic mail and message system and full telex handling (including input and output spools). The print stations (up to two) have multiple spools for different stationery.

The Contour 21mbyte Winchester disc storage subsystem costs £1,995 and the new 42mbyte version £2,730. An eight station network with a 21mbyte Contour costs £3,690. *Tel: 01-828 9000.*

Macro assembler

USERS wanting to develop programs for the Motorola MC68000 16 bit microprocessor can do so using the 68000 Macro Cross Assembler from S-C Software in Dallas. It is a complete macro assembler with co-resident program editor.

Written in 6502 machine language, it assembles standard Motorola 68000 mnemonics using the same assembler

syntax described in the Motorola reference manual.

There are 20 assembler directives and 29 commands (including an EDIT command with 15 subcommands). INCLUDE and TARGET FILE capabilities allow source programs to be as large as your disc space.

Registered owners of the S-C Macro Assembler can buy the 68000 Cross Assembler package for $50. The complete package costs $130. *Tel: (0101) 214-324 2050.*

Light pen teaching aid

A USEFUL teaching aid for children is the LPS II light pen system from Gibson Laboratories.

It can be used to draw on a computer's display screen, be it a black and white or green phosphor CRT, a colour TV (with an RF modulator), or a colour monitor, as though the screen were a piece of paper.

Distributors Pete and Pam say for the creation of graphics, its operation is similar to a graphics tablet but at roughly half the price.

The LPS II consists of the pen, a sealed card placed in slot 7, and supporting software.

When the LPS II disc is booted a menu of programs is displayed together with a description of them. The light pen is used to make a selection by pointing to a white dot next to the program name.

Many of the programs on the preliminary disc are demos designed to familiarise the new user with the capabilities and use of the pen.

The package costs £249.

Tel: 0706 227011.

Apple-IBM network

A SYSTEM that links Apple IIs, IIIs, and the IBM Personal Computer is claimed by Zynar to be one of the most powerful and complete networking systems available.

Their Plan 4000 system, which was designed jointly with Nestar of California, is built around the ARCnet and Ethernet networking technologies. It allows the different micros to be connected to the same network by means of a plug-in interface card.

The three types of micros can exchange information by various means, including Zynar's electronic mail system. Up to 255 stations of any mix of IBMs and Apples are supported on each network segment. Stations can be an arbitrary mix of servers and workstations.

The system currently supports up to 548 mbytes of disc storage on a single file server, and multiple file servers can be added later.

Zynar hard discs come in 60 and 137 mbyte formatted capacities.

The Plan 4000 system also includes a digital tape back-up capability, built into the file server unit, with a choice of 20 or 45 mbyte tape capacities. The system features direct communication links with mainframes using Zynar's IBM 3270 Gateway and 3780 Emulator.

In addition to server and operating system software, Plan 4000 supports most commercial software available for the Apple II, III and the IBM PC.

Tel: 0895-54831.

EDORAS][

A powerful new DOS for Applesoft APPLE][programmers.

* Can more than triple the effective capacity of existing APPLE][floppy discs.
* Faster processing of all data.
* Faster screen display.
* No more CTRL-D.
* Full ASCII character set (0-255) including ,; etc. in all files.
* Powerful easy-to-use file handling commands using less program space.
* Powerful range of optional extras.
 e.g. High speed program editing.
 Screen layout design, storage & utilisation
 and more.

Only £29.95 + VAT.

Standard DOS

```
10 D$ = CHR$ (13) + CHR$ (4)
20 A$ = "HELLO"
30 B% = 11230
40 C = 123456789
50 PRINT D$; "OPEN EXAMPLE"
60 PRINT D$;"WRITE EXAMPLE"
70 PRINT A$;B%;C
80 PRINT D$;"CLOSE EXAMPLE"
```

Programme length 143 Bytes
Record length 22 Bytes

EDORAS][

```
10 A$ = "HELLO"
20 B% = 11230
30 C = 123456789
40 & .OP"EXAMPLE"
50 & .WR"EXAMPLE":
   #5;A$;%B%;C
60 & .CL"EXAMPLE"
```

Program length 110 Bytes
Record length 12 Bytes

Computersolve, 2A Rating Row, Beaumaris, Anglesey, Gwynedd. Telephone: 0248 88416

OMNIS VERSATILE!



OMNIS lets you printout reports any way you want, including the printing of mailing labels of up to 5 across, standard letters, business forms, printed lists and just about any other report format that you can define, can be obtained from OMNIS. Reports can also include extra calculated fields of up to 120, and can also handle ascending and descending sorts, sub-totals (9 levels) and page breaks. Just imagine the saving in time and chore in being able to send out standard letters! Telephone Brigit for more details on the features of OMNIS.

BLYTH COMPUTERS

Wenhaston, Halesworth, Suffolk IP19 9DH.
Telephone: (050 270) 371

OMNIS. YOU'LL GET MORE FROM IT!

By MICHAEL FALTER

Keep the books without breaking the bank

THERE are a great many accounting programs for the Apple II on the market. Many are fairly expensive, and have a great many facilities which I do not need. There is always the doubt about whether they'll be worth the money. Everybody has known programs which claim, and meet, a marvellous specification, but are not usable in practice for one reason or another.

I have long needed a simple program which would keep my petty cash book, following my own way of working. Essentially, a single entry bookkeeping program which would store date, folio number, payee, total amount of payment (including VAT), VAT, and, in the correct column, the amount excluding VAT. I require amounts to be carried forward from month to month, but am prepared to do this manually.

I chanced to see an advertisement for the Hilderbay Bookkeeper at the seemingly ridiculous price of £30.44 (now £49). It could hardly be any good at that price . . . but it was a small enough sum to risk. I ordered one.

It arrived within the week, and I loaded it without expecting too much. To my great surprise I found that the program was written to a high standard, did everything that I needed of it and more, and was very easy to use. The manual left something to be desired, however. I can imagine a first-time user having some trouble getting to grips with the program – but once accustomed to it, the manual is no longer needed.

The program has two menus. The master menu (Figure 1) selects all options which have to do with actual bookkeeping. The parameters menu (Figure 2) allows one to configure the system to one's needs in a totally flexible way. The data disc slot and drive and printer slot can, of course, be changed, as can the standard VAT rate.

All references to book entries read from or write to the "current" accounts file. This can be changed from the parameters menu. An unusual and very useful facility is that one can set up printer features by sending user-defined special characters so that, for example, condensed print can be used to increase the number of columns which will fit on a page. It is also possible to define the page layout by specifying the analysis column width, the line length, and the number of characters of descriptive text associated with each item.

The up to 20 analysis headings (such as petrol, entertaining etc) are also defined from the parameters menu. It is very easy to enter and edit headings. A word of caution. Once headings are set up and in use, they should not be changed!

The parameters, once defined, may be saved on a disc file which is read at the beginning of a Bookkeeper session. One would normally keep quite different sets of parameters for different purposes, petty cash, sales, etc.

```
        HILDERBAY BOOKKEEPER
    COPYRIGHT HILDERBAY LTD 1982


A  ENTER ITEMS.            V.A.T.: 15%
B  EXAMINE ENTRIES.
C  TOTALS.
D  SORT ENTRIES IN DATE ORDER.
E  PRINT ANALYSIS.
F  READ, ALTER, OR SAVE PARAMETERS.
G  INITIALISE A DATA FILE.


          TITLE: SALES 3RD QUARTER 82
          FILE SALES.3Q82

          SLOT 6, DRIVE 1
          PRINTER IN SLOT 1


CHOOSE AN OPTION.
```

Figure I: Master menu

```
A  CHANGE V.A.T. RATE
B  ADD/CHANGE/DELETE HEADING.
C  SET PRINTER SLOT AND CONTROL DATA.
D  ENTER ACCOUNTS DATA FILE NAME.
E  SET DISC SLOT AND DRIVE.
F  SAVE PARAMETERS ON DISC FILE.
G  LOAD PARAMETERS FROM DISC FILE.
H  SET PAGE LAYOUT.
I  CATALOG.
J  SET TITLE.


CHOOSE AN OPTION
```

Figure II: Parameters menu

The master menu allows the usual facilities. One can enter items, examine existing items and print an analysis. In addition, totals (only) can be printed, and the entire current file can be sorted in chronological order.

To enter an item one selects the appropriate option, such as stationery, and then enters the date. Only those elements of the date different from the previous date need to be entered. If the previous date was 20 JAN 1983, only 25 (RETURN) need be entered for an entry for 25 JAN. The amount can be entered in any of six ways.

Any one or two of the following items can be entered: Total amount (including VAT), ex-VAT amount, or just the VAT. In practice, one would usually enter the total including VAT for standard rated entries, and the amount and VAT separately for non-standard rate entries (such as zero rated items). Entering VAT only and getting the program to do the rest seems superfluous.

One problem which arises in practice has been foreseen by the program. VAT can be rounded either up or down. Fifteen per cent of, say, £45.10 is £6.765, which can be rounded to £6.76 or £6.77. If you are generating the figures you can choose, but if you are entering figures from various sources you will get both conventions.

Hilderbay Bookkeeper allows you to enter the total, and will then separate amount and VAT. If the VAT does not agree with the input figure it can be adjusted up or down by one penny. It is convenient to enter the total only rather than amount and VAT, as there is a hidden benefit in that a surprising number of errors were found in the bills being entered.

Finally, descriptive text is entered. This might comprise, say, folio number, cheque number, name of payee. Note that folio and cheque numbers are not automatically allowed for, but are treated as part of the name. This can be slightly inconvenient, but it does mean that these numbers can be entirely omitted when desired, taking up no space on the page.

After entering all details one can accept or reject the entry. If accepted it is written onto the current file.

Existing entries can be examined one by one. A very useful facility is allowed at this stage – two "flag" characters can be entered. They are simply two user-defined characters that are added to the entry, and can later be changed.

I find it essential to mark items that I have paid, and use one of the flags for that purpose. I have not yet found a use for the other.

Entries cannot be edited, once completed, although it is possible to mark entries as deleted (they are then not used

for any calculation or analysis). It is not officially possible to display a page of entries on the screen at the same time. A limited full page display is possible by printing an analysis to slot 0, but this is rather cumbersome. An analysis on paper can be printed at any time.

The analysis printed is satisfactory (see Figure 3). The only limitation is that the complete analysis must fit in twice the printer width (160 characters for the simplest dot matrix printers, over 500 for such as the Epson MX100). Totals may be brought forward from previous periods or carried forward (disc files are used for this), and can be printed.

It takes several seconds to sort the entries in chronological order. Hilderbay claim hundreds of entries can be sorted in minutes. Two separate keystrokes are needed to initiate a sort, making accidental selection unlikely.

A range of low-cost programs which will interface with Bookkeeper, including an invoicer / stock control statement production package, is due for release soon.

In conclusion I must say that it is quite difficult to find aspects to criticise. Hilderbay Bookkeeper is unique. There is nothing else like it on the market. In addition, it is an extremely well-designed program, and is a pleasure to use. I couldn't do without it.

2-PAGE EXAMPLE WITH C/F

					TOTAL	VAT	TRAVEL	RENT&R	STAT.	PHONE
		C/F			2383.51	179.74	918.40	876.00	20.40	223.37
12	8	1	456	PORTMAN TRAVEL	129.34	0.00	129.34			
3	8	4	458	PRINT STATION A	23.45	3.05			20.40	
17	8	8	457	BRITISH TELECOM P	256.87	33.50				223.37
17	8	7	455	L.B.CAMDEN	876.00	0.00		876.00		
18	8	10	420	MIKROGEN	75.00	9.78				
23	8	11	460	MICROFIX LTD	67.87	8.85				
23	8			CHAMELEON	23.56	3.07				
22	8	12	467	BRITISH RAIL	25.76	3.36	22.40			
12	8	6		JOHN SMITH	24.00	3.13				
TOTALS:					3885.36	244.48	1070.14	1752.00	40.80	446.74

SUNDR.	S'WARE	MAINT.	MSGRS
20.87	65.22	59.02	20.49
	65.22		
		59.02	
			20.49
20.87			
41.74	130.44	118.04	40.98

Figure III: Analysis spread over two 80 column pages

Compac Series

Apple II Word-Processor

★ Over 90,000 characters in memory at once – about 3 times any other system!
★ Mail-list facility.
★ Can be used as a data-base.
★ Compatible with Visicalc Files.
★ Requires Videx and 128K memory card and only one disc drive.
★ Apple II Plus or Apple IIe.

Price £175.00 + VAT

Apple II Visicalc Aid

★ Upper and lower case printouts or disc files.
★ Multiple printouts.
★ Format with varied column widths.
★ See and alter full length Visicalc Formulae.
★ Alter lines, write headings etc.
★ Works with OR without the Videx 80 column card.

Price £35.00 + VAT

Write or phone for further information:

Compac
Back Lane, Mickleton, Chipping Campden, Gloucestershire GL55 6SJ.
Tel: Mickleton (038677) 464 or 394

OMNIS FLEXIBLE!



OMNIS works like the Genie in Aladdin's lamp. Tell it what you want and leave the rest to the computer. OMNIS allows you to define precisely what your record card should look like by letting you draw the card on your computer screen. OMNIS lets you draw up to 10 screens for each record. Each record may be up to 1023 characters in length and consist of up to 120 items of information. Telephone Brigit for more details on the features of OMNIS.

BLYTH COMPUTERS
Wenhaston, Halesworth, Suffolk IP19 9DH.
Telephone: (050 270) 371

OMNIS. YOU'LL GET MORE FROM IT!

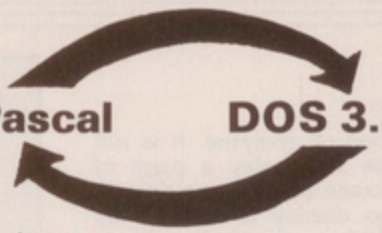
FYLDE COMPUTER SHOW

JOIN US

at the **WINTER GARDENS BLACKPOOL JUNE '83**

To book YOUR space contact:
Peter Whitehouse 0706 877687

GETDOS ~ GETPAS



Apple Pascal/DOS 3.3 disc file transfer utilities for APPLE][.

GETDOS
is a PASCAL program for transferring files from DOS 3.3 discs to Apple Pascal.

GETPAS
is a program running under DOS for transferring files from Apple Pascal discs to DOS 3.3.

Files may be transferred literally, or text files may have their internal formats translated.

Both programs have been designed for ease of use and speed of operation. They are fully documented and each requires 2 disc drives.

Inclusive prices

GETDOS	**£30.00**
GETPAS	**£35.00**
GETDOS + GETPAS	**£60.00**

Scott Computer Enterprises
11 Steeple Crescent, Dalgety Bay,
Dunfermline, Fife, KY11 5SY.

APPLE IIE COMPATIBLE

APPLE USERS

BACK UP VISICALC AND ALL YOUR VISIS QUICKLY AND SIMPLY

Copy II Plus is a versatile software back-up system, capable of backing up all visis, as well as most other protected software.

Its fast — only 45 seconds for Fast Copy, less than three minutes for Bit Copy.

Its simple — menu driven for ease of use with full instructions on backing up dozens of popular programs.

Its comprehensive — it includes all the file handling and DOS utilities you will ever need.

Its priced right — at around half the cost of similar competing products.

Copy II Plus — only £35 + V.A.T.

COPY II PLUS
COPY
COPY
COPY
ORCHARD SOFTWARE

Send cash with order, or quote your Access or Diners card number to:
Orchard Software, 17, Wigmore Street, London W.1. Telephone 01-580-5816. Dealer enquiries welcome.

Key to friendly Apple CP/M

By NEVILLE IAN ASH

FRIENDLY seems to be a strange term to use with CP/M, usually known for its unfriendly approach, but then I'm not talking about the standard version – instead a new product called Turnkey CP/M.

Authors GB Computer Products claim that this program lets you communicate with applications in plain English.

As I have used the normal unfriendly CP/M which just shows a cursor and the letter A, anything would be an improvement – especially as learning all about those special files can be enough to put you off altogether.

Turnkey CP/M was supplied for review without an instruction booklet as GB suggested that I really didn't need one to use their product. So I started by just inserting the disc into Drive A of my Apple and booting up.

Instead of the letter A and the cursor as with normal CP/M, a full menu was shown after loading. Option selections were very simple. To select a program you pressed the space bar, S for swap a disc was used after making a copy of the master disc, D logically enough displayed the files on disc and gave the option of printing them out if required, C for copy, N to change the name of the disc, and F gave the erase, move or rename option.

After all these helpful options if you want to go back to standard CP/M, then X brings back the A prompt.

There was no facility for formatting the discs I was going to use – an essential utility when using CP/M. However it was simple enough to add it to the first option – Run a Program.

Up to eight programs can be listed under the first Run a Program option, and under the Select a Program heading you have the choice of running any program already on the disc, or adding or amending another program. Seven choices of modification are available:

1 Change the disc copy program. 2 Change the number of selectable programs. 3 Change the selected programs. 4 Change the type of printer being used. 5 Change the method of selecting a program.

Option W writes the change to disc and X lets you exit without changing anything.

Other features include provision, when using the copy facility, for recording the date and time of the copy, and under disc directory not only are the existing files listed, but also the amount of space that each one uses up and the remaining space available.

While normal CP/M produces messages such as "BDOS Error on A:RO" which can be quite unintelligible to many people, in the same situation Turnkey CP/M would give one of these two messages – "You have changed the disc in Drive A without telling the computer" or "The disc in Drive A is READ only."

Following the procedure for modifying program selection, I went through and added the command line F for format to my copy of Turnkey. Then I could call it up just by pressing the space bar and keying in F.

In fact I managed to use Turnkey and add Format even before the manual arrived, proof that it is an easy package to use in practice.

For CP/M with an unusual extra factor Turnkey CP/M is well worth considering.

The package, which costs £69, expects to find an 80 column card in the Apple.

COMPUTER SERVICES

New Offices Now Open
43A Belvoir Road, Coalville, LE6 2PD.
Tel: 0530 38685 or 33566

SOFTWARE FROM LUTTERWORTH SOFTWARE

COLTEXT a specialised text editor, which can instantly produce text in several columns, ideal for magazine editors etc £60
RAM DATABASE highly flexible, instant search by any field, user designed format, with all data held in RAM £30
VOLUME DATABASE equally flexible, but emphasis on volume, with data held on any number of disc drives £35
PAYROLL complete system, with Statutory Sick Pay included, designed for easy modification to user's requirements £169

HARDWARE

NEC PC-8023B-C Dot Matrix Printer £349
Hermese 612 Quality Matrix Printer £2,049
Epson MX80FT III Dot Matrix Printer £349
Epson MX100FT III Dot Matrix Printer £459
Brother Daisy Wheel £660
Tec Spinwriter £499
Zappler 2 Parallel & Serial Interface £89
Parallel Printer Card £50
Language Card (16K RAM Card) £61
Z80 Card £61
80 Column Card £81
Eprom Card £71
Joystick £15
Apple Compatible Disc Drives £210
Disc Controller Card £37
RGB Apple Card £73
14" RGB Monitor £259
12" Green Phosphor Display Monitors £109
12" G/P Monitors 18Mhz Max £89

All prices exclusive of VAT. Please add £2 on orders under £100 for p&p, £5 on orders over £100.

Dealer enquiries welcome.

OMNIS POWERFUL!

OMNIS is extremely powerful. First of all, OMNIS will check to make sure that each item of information that is entered is of the right type ie: Alpha numeric, date, etc. Secondly, OMNIS can check that the information lies between the allowable limits that you have specified for that information. This is called "range checking". OMNIS makes it really easy to add, delete or amend records. It also allows for global updating on a selective basis. Telephone Brigit for more details on the features of OMNIS.



BLYTH COMPUTERS
Wenhaston, Halesworth, Suffolk IP19 9DH.
Telephone: (050 270) 371

OMNIS. YOU'LL GET MORE FROM IT!

PASCAL PROGRAMMING AIDS

A set of Pascal Library units for the Apple II providing:-

'OPERATOR PROOF' DATA INPUTS AND EDITS.
TRAPPING OF FLOATING POINT ARITHMETIC ERRORS.
EXTENDED PRECISION FLOATING POINT ARITHMETIC.
CONVERSIONS BETWEEN STRING AND FLOATING POINT TYPES.

Supplied complete with a comprehensive user manual and demonstration program.

UNITS1.LIBRARY £20 + VAT
Separate manuals £3.75

STATISTICAL ANALYSIS

Two new Statistical Packages for the Apple II with the Pascal language system (1.1). These have been designed to give facilities comparable to those found on many main frame systems.

GENERAL STATISTICAL ANALYSIS

Multiple Stepwise Regression, Correlations, t, Chi Sq. & Bartlett's Tests, Poisson & Binomial Distributions. Transforms, time shifting & combination of the series data.

VARIANCE ANALYSIS

Crossed Classifications and Nested Analyses. User selected error estimates & Partial Analyses.

STATISTICAL ANALYSIS £180.00 + VAT
Separate manuals £5.50

VARIANCE ANALYSIS £150.00 + VAT
Separate manuals £4.00

JEL COMPUTER SERVICES

3, King's Road, Cleethorpes, DN35 0AJ. Telephone: 0472 693742

Write now for full details.

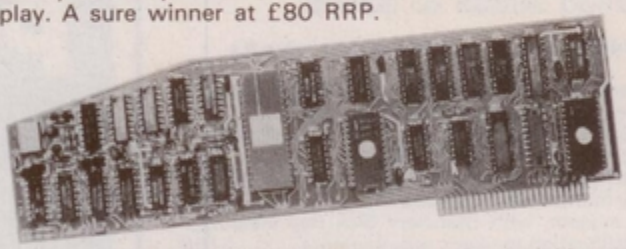
(Trade lists available for Apple dealers)

* Apple is the trade mark of Apple Computer, Inc.

80 COLUMNS FOR IIe, CHEAPER THAN APPLE'S?

This card is fully compatible with Apple's latest 80 column board. However, for the same price as Apple's this board has 8 spare sockets ready to accept 64K of RAM. Works with all software that works with the new IIe 80 column display. A sure winner at £80 RRP.

VISION-80



The VISION-80 stands apart from all other cards as the "ROLLS ROYCE" of 80 column cards, as confirmed by every magazine review. Our Rev 3 and Rev 5 boards are fully compatible with the Apple IIe and II, giving a superb 9 x 11 dot matrix, full lower case descenders and inverse lower case as well as upper case. This is the only 80 column board that supports Apple's text window and text manipulation commands. It works with Pascal and CP/M, and the following software WORDSTAR 3.00, APPLEWRITER II, LETTER PERFECT, FORMAT-80, ZARDAX, EXECUTIVE SECRETARY, MAGIC WINDOW, VISICALC, MULTIPLAN (CP/M or DOS).

VISION-80 card £195
VISION-80 AWII (AppleWriter II pre-boot £18
ROSETTA Pascal to DOS utility £35
SCREENMASTER 80 column card £185
VISION-80 VC pre-boot 80 col Visicalc £29.50
VISION-80 VC EXPANSION 80 col Visicalc and 143K using all popular 128K RAM cards £39

Please contact your local Apple Dealer, or PYNWON for the address of one of our Dealers close to you.

UK Dealers please contact:
PYNWON SOFTWARE, 17 Watermill Lane, Edmonton N18 1SU London.
Tel: 01-884 0879

SCOTLAND	N. IRELAND	SWITZERLAND	NETHERLANDS	HONG KONG	AUSTRALIA	USA
Scotbyte	TC Computing	Lemane CompSA	Aramco	Delta Comms	Imagineering	Coex
031-343 1005	0265-53155	021-291516	070-761716	3-699241	02-3583011	714-5583972

The Scotch Diskette is no miracle product. It locks in the data you feed it. It gives you data back, when you need it. Simple, really.

But there's more than that to a Scotch Diskette. It doesn't cause errors. It doesn't lose vital information. It's totally reliable. That's why we call it "the Key to Data Security".

Scotch Reliability

Ever since they introduced the first computer tape, over 25 years ago, 3M have specialised in magnetic media. Today, every Scotch Diskette comes to you 100% certified for error-free performance. Small wonder that 3M media has been chosen for use as the world-wide amplitude reference standard.

3M: Impeccable Service

It doesn't matter what sort of equipment you have. If it uses floppy disks, chances are there's a Scotch Diskette to fit it. And if ever you need advice or help with product selection, handling or storage, there's a nationwide network of 3M distributors to serve you - impeccably.

Whether your system uses computer tape, disks, data cartridges, cassettes or floppy disks, 3M has the key.

For the address of your nearest distributor, contact Data Recording Products, 3M United Kingdom PLC., 3M House, PO Box 1, Bracknell, Berks RG12 1JU. Telephone: Bracknell 58502.

3M: Your Key to Maximum Data Security.

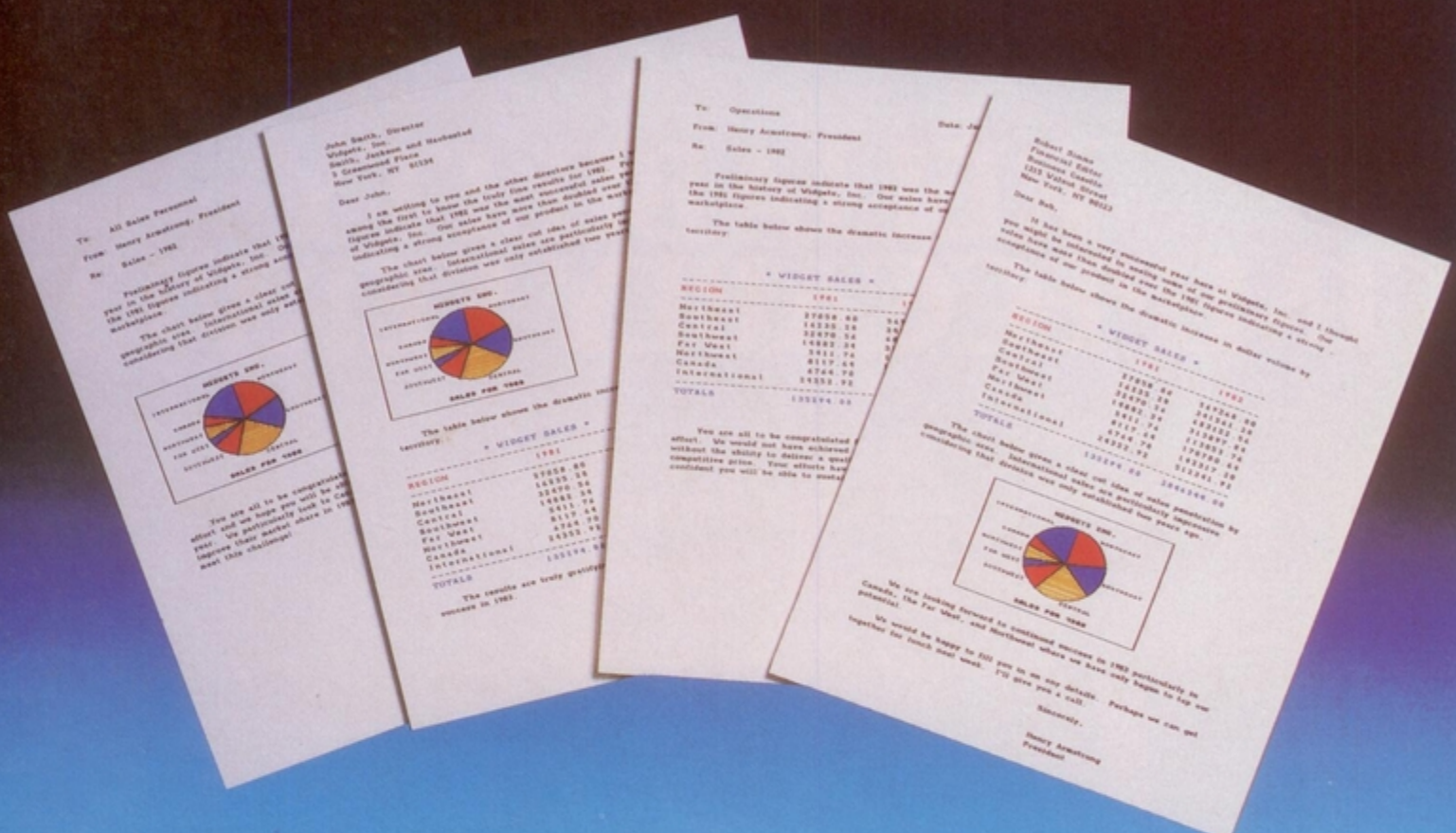
RELIABILITY IMPECCABLY SERVED



3M and Scotch are trade marks.

3M

RANDOM ACCESS IN A PRINTING BUFFER?



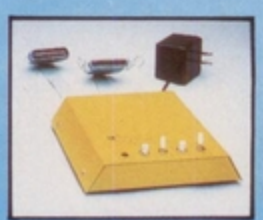
YES!

Introducing . . .
The IS PipeLine™ Random Access Printing Buffer.

Insert pictures, graphics or spread-sheet data into reports. Duplicate form letters—automatically changing addresses on each. Now, all your programs can work together to produce printed output.

For the first time ever, here is a buffer that not only frees your fast computer from your slow printer but also allows you to rearrange, compose and copy your data on its way to the printer.

- Random Access Printing—stores paragraphs or pictures for printing in any order—any number of times.
- FIFO Printing—conventional first-in first-out operation.
- Compression of data for efficient utilization of memory space.
- Ability to interrupt long-term buffer operations for straight-thru short-term printing.
- Simple Erase feature to clear buffer.
- Automatic duplication capability.
- Easily expandable, by you, from 8K Bytes to 128K Bytes.



The IS PipeLine is Universal—it works with any parallel (Centronics*—style) computer/printer combination. A special version is available for PKASO™ Printer Interfaces.

The IS PipeLine is a self-contained unit with operating manual, cables and power supply included.

For more information on the truly revolutionary IS PipeLine Random Access Printing Buffer, call us today.

Interactive Structures Inc.
146 Montgomery Avenue
Bala Cynwyd, PA 19004
Telephone: (215) 667-1713

*Centronics is a trademark of Centronics Data Computer Corp

The IS Pipeline™ Random Access Printing Buffer is patent pending.

Talk to Prestel with your Apple

Now, with the Owltel communications package, you can use your Apple as an intelligent Prestel or Viewdata terminal. With Owltel, you get all the hardware and software needed for interfacing with Prestel. No external modem is needed, and the system is designed to meet British Telecom approvals.

And Owltel offers other prospects – linking with private or international Viewdata systems, for example – or even forming the heart of an integrated Apple-based communications network.

To boost your Apple's communications capabilities, call Mike Gardner on 0279 723848.



Owl Micro-Communications

The Maltings, Station Road,
Sawbridgeworth, Herts., CM21 9LY.
Telephone: 0279 723848.

Apple Books and Magazines

Title	Supplier	Retail Price
All About Applesoft	Call Apple	9.50
Apple II Users Guide	McGraw Hill	11.85
Apple Pascal	McGraw Hill	10.50
Apple Graphics & Arcade Design	Continental Software	12.50
Assembly Language	Randy Hyde	11.95
Assembly Lines	Softalk	12.95
Bag of Tricks	Quality	24.95
Beneath Apple DOS	Quality	11.95
Custom Apple	Hofacker	16.95
Dictionary of Computers	Penguin	2.95
Dictionary of Micro-processors	Penguin	2.25
Dungeons and Dragons	Penguin	1.50
Introduction to Wordstar	Sybex	10.95
Kids and the Apple	Datamost	11.95
LOGO for Apple II	Terrapin	9.50
Micro on the Apple Vol. 1	Micro Ink	14.95
Micro on the Apple Vol. 2	Micro Ink	14.95
Micro on the Apple Vol. 3	Micro Ink	14.95
Nibble Express Vol. 1	Micro Sparc	12.50
Nibble Express Vol. 2	Micro Sparc	12.50
Peeking Vol. 1 (1978)	Call Apple	10.50
Peeking Vol. 2 (1979)	Call Apple	15.00
Peeking Vol. 3 (1980)	Call Apple	20.00
Peeking Vol. 4 (1980)	Call Apple	20.00
Power of Visicalc	Mngmt Info.	5.95
Power of Visicalc Vol. 2	Mngmt Info.	5.95
Power of Visicalc/Visiplot/Visifile	Mngmt Info.	9.95
Power of Multiplan	Mngmt Info.	9.95
Power of Supercalc	Mngmt Info.	5.95
Turtle Geometry	Terrapin	13.95
Video Book	Penguin	4.95
Warlock of Firetop Mountain	Penguin	1.25
What's Where in Apple	Micro Ink	9.50
Wordstar Made Easy	McGraw Hill	9.25
Wordstar Training Guide	MicroPro	15.00

S.B.D. Software is proud to announce their distribution agreement with the most up to date APPLE-only magazine in America.

CALL A.P.P.L.E. MAGAZINE

In today's fast changing world of the APPLE you can't afford to stay behind, so don't settle for anything less than the best APPLE-only magazine in America.
Now you can purchase this outstanding magazine for the low price of £1.75 per issue.
Your subscription for 12 or 24 magazines may start from any month in 1982.
Single back issues are available at £2.25 per issue including postage and packing.

To **SBD Software, Unit 4, Southdown Works, Osiers Road, London SW18 1NL. Tel: 01-870 9386. Telex: 8814122 LAIRD-G 01-870 9275 (24 hours)**
Please send me the following items:

Product	Qty.	Price	Total
Add 75p for Postage & Packing			0.75
		Grand Total	£

☐ Please start my subscription for CALL APPLE
on ☐ 12 issues @ £21.00
Month Year ☐ 24 issues @ £40.00
☐ Europe Air Mail postage + £6.00 per 12 issues.
☐ I enclose cheque/postal order made payable to
SBD Software for £
☐ Please debit my Access/Barclaycard (delete as app.) Number
☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ Exp Date
Name
Address
..... P 10

new from COMPUTRONIX

two *Wizard* printer boards

WIZARD-IPI for Apple II.
Smart Printing at a Smart Price

For £63.00 **(Suggested Retail)** you get the Wizard Intelligent Printer Interface for parallel printers (complete with cable). It offers not only **text printing**, but **enhanced text formatting** such as: line length, left and right margin, page length, software control of automatic line feeds and perforation skips.

Graphics too—hi-res screen dump, alternate hi-res screen dump, 90 degree rotation, inverse video, double-size picture, left margin alignment... all done with single-key commands.

WIZARD-EBI
Up to 64K of Buffering in your Epson MX Series Printer

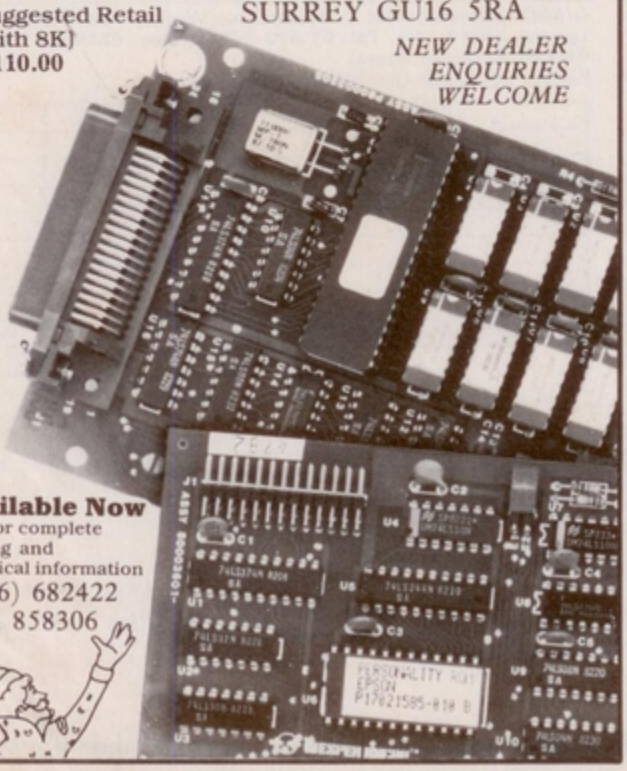
The Wizard Epson Buffered Interface mounts completely inside any MX Series printer. It provides up to 64K characters of buffering in steps of 8, 16, 32 or 64K, and offloads the time-consuming printing task from the computer to the buffer.

Use your computer for the next task while the printer prints the previous one. The Wizard-EBI, with its on-board 5 volt regulator, will never overload the Epson 5 volt supply as others do.

Suggested Retail (with 8K) £110.00

COMPUTRONIX
14, THE RIDINGS,
FRIMLEY, CAMBERLEY,
SURREY GU16 5RA

NEW DEALER ENQUIRIES WELCOME



Available Now
Call for complete pricing and technical information
(0276) 682422
TLX 858306

Purchase

THE NEW APPLE *//e*

TWO DISC DRIVE SYSTEM
AT **£1599.00** WITH ***FREE***
OLIVETTI PRAXIS 35 ELECTRONIC DAISY WHEEL TYPEWRITER/PRINTER
WORTH £545.00



olivetti Praxis 35

Portable electronic typewriter. Three spacings, interchangeable daisy wheel, printing element and ribbon cartridge, correction device.

Introducing the Apple //e personal computer, the successor to our worldwide success, the Apple II. The 'e' stands for 'enhanced', and everything which the Apple II has always stood for. Flexibility. Reliability. Quality.

Apple //e offers you more features and greater capabilities. Like a 64K user memory, which can be expanded to 128K – so you can create larger files and handle larger numbers of numbers.

It also has a responsive, full-function keyboard. Four arrow keys to speed cursor movement. Upper and lower case text. Eight internal slots, which let you expand your system, including a multi-purpose video and memory expansion slot for inserting an 80-column display card.

But don't just believe what you read. Make sure you see the Apple //e for yourself.

Call Tony Leckenby on
01-790 9991

Olivetti, Etizi/221 Interfaced Typewriter/Printers, Olympia & Silver Reed Typewriter/Printers, Software, Supplies & Training Support.

East Central

(COMPUTER SYSTEMS) LTD.

East Central House, 139/147 Mile End Road, London E1 4LN.
Telephone: 01-790 9991 (10 lines)

All prices exclude VAT

OPEN FRAME MONITORS AVAILABLE FOR OEM'S

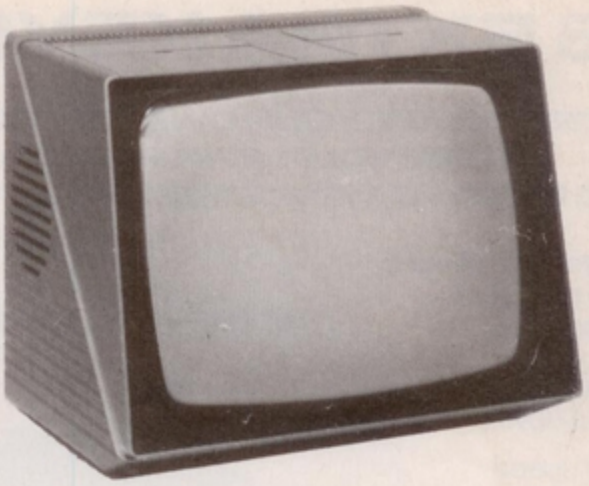
The 'PRINCE' of Monitors

offers better Monitoring.

24MHz Bandwidth~ensures a clear crisp display.

Available with P4 White
P31 Green
AND L1 ORANGE





Scan: 625 lines/50 Hz. Deflection: 110°. Active raster: 240x172mm. Bandwidth (3dB): 10 Hz-24 MHz (at 3dB points). Character display: 80 characters x 24 lines. Horizontal frequency: 15625 Hz ± 0,5 KHz. Vertical frequency: 50 Hz. Horizontal linearity: ± 3%. Vertical linearity: ± 2%. Geometric distortion: ± 1.5%. EHT (at zero beam current): 13kV ± 0.5kV. Power drain: 30 Watt approx. Voltage supply: 110V A.C. 50 Hz/220V A.C. – 50 Hz/240V A.C., 50Hz/ ± 10% upon request. Video input: 2 x BNC – or CINCH – or PL 259, (composite video) negative sync, input 0.5–4V p.p. across 75 Ohms. X-Ray radiation: conforms to I.E.C. Spec. No. 65. Overall dimensions: 320 x 270 x 265 mm. Weight: 7 Kg. approx. Ambient temperature: 0–45°C.

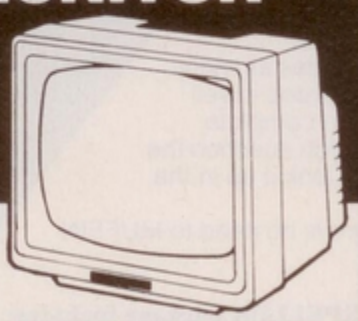
OTHER CROFTON PRODUCTS INCLUDE: Computer peripheral equipment, Frame grabber, Floppy disk drives, Floppy disks, Computer power supplies, C.C.T.V. monitors, Uncased monitors, Monitor P.C.B's., Cathode ray tubes, VHF/UHF modulators, Video switchers, Video distribution amplifiers, Camera housings, Pan and tilt units, Camera lens, Camera tubes, Printed circuit board service.

CROFTON ELECTRONICS LIMITED

35 GROSVENOR ROAD, TWICKENHAM, MIDDLESEX TW1 4AD
Telephone 01-891 1923/01-891 1513 Telex 295093 CROFTN G

AT THESE PRICES YOU CAN SWITCH OVER TO A PROFESSIONAL VIDEO MONITOR

FROM ONLY £86.00



The Kaga range of monitors is designed specifically for use with micro-computers, offering flicker-free character and graphic displays. There is a Kaga monitor suitable for use with your system, be it an Apple, Commodore, BBC Acorn, Osborne, Tandy, NEC, Sharp or any other popular micro.

■ High-res. 12" B/W inc. Cable	£86
■ High-res. 12" Green inc. Cable	£96
■ High-res. 12"Amber inc. Cable	£102
■ 12" RGB Colour Monitor (med. res.)	£225
■ 12" RGB Colour Monitor (high res.)	£276
■ Apple II or IIe RGB Card + Cable	£75
■ RGB Cable for Apple III	£8

For your Apple

Phone for our latest low prices.

AIMGRAM (09277) 68211

AIMGRAM LTD 31 Roman Gardens, Kings Langley, Herts WD4 8LG Tel: Kings Langley

New for APPLE II/IIe

Compare these FORTH attributes with other languages for Apple II:
Suitability – FORTH is suitable for all programming tasks, particularly games, graphics and business applications. Both novices and professionals can benefit from FORTH'S unique blend of facilities.
Productivity – FORTH programmers are more productive. Of the thousands that have changed to FORTH, many report a tenfold increase in their useful output.
Efficiency – The Metacrafts FORTH compiler produces threaded code which is very compact and which runs 10-20 times faster than BASIC and 2-5 times faster than Pascal p-code.
Extensibility – FORTH lets you design your own program control structures and data handling primitives. This means you can truly extend the language to suit your application, instead of being forced to "bend" your application to suit the language.
Simplicity – FORTH encourages a highly modular interactive style of programming which simplifies program development. This is backed up by a powerful set of tools, including a full screen editor and a debugger which allows you to test programs at the source code level.
Flexibility – Metacrafts FORTH can be configured to handle any device type, and diskettes can be generated to handle turnkey applications.
PRICE £79 includes: comprehensive user guide. FORTH 79 system, full screen editor, macro assembler, debugger, utilities. Extension word sets for double length arithmetic, strings, graphics, heap and buffer handling. Dictionary overlays. Support for 40/80-column display + printer + language card. Customer support service.
Requires 48K **Apple II/IIe** + 1 **Disk II** (16 Sector).
Payment by cheque/cash with order.
Write for additional information. Dealer discounts.

Metacrafts FORTH

To: Metacrafts Ltd, 144 Crewe Road, Shavington, Crewe. Tel: (0270) 666274
Name Tel. No.
Address
.....
Cheque No.
If you do not wish to cut out form send order separately

16 EXTRA KEYS TO YOUR APPLE

DESIGNATE YOUR OWN KEY CODES OR PHRASES TO A SINGLE KEY
TURN YOUR APPLE INTO A VERSATILE WORD PROCESSOR
NO NEED TO MEMORISE THOSE VISICALC CODES LIKE "/SS" AND "/GC"

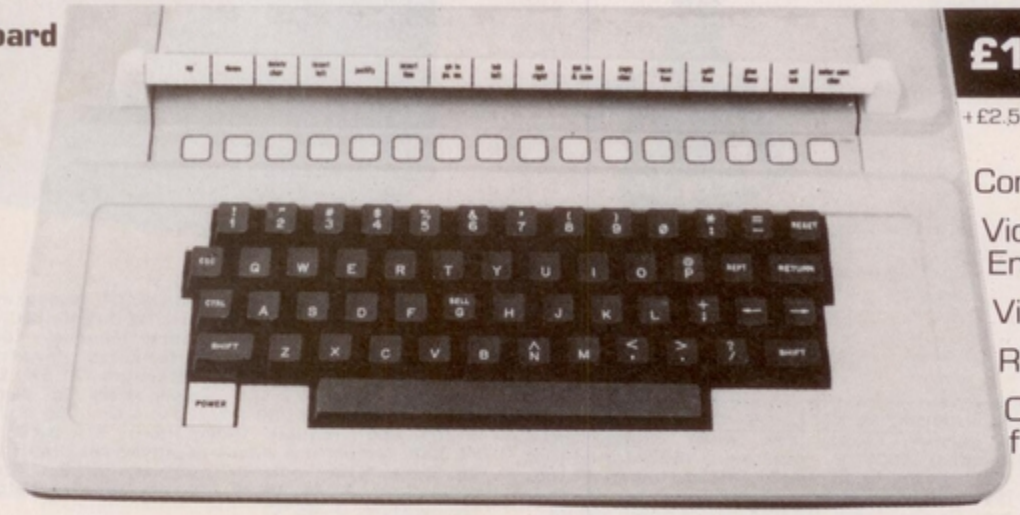
Original keyboard also modified to include:

All keys repeat if held down

High speed repeat key

Upper and lower case

Type ahead buffer



£165 + VAT

+ £2.50 P&P

Complete Kit:-

Videx Enhancer II

Videx Keypad

RP Indexer Bar

Only Available from us

EACH RP INDEXER BAR ABOVE THE KEYS, ROTATES TO ALLOW FOR 4 DIFFERENT SETS OF 16 KEYS. EACH SET CAN CONTAIN UP TO 130 CHARACTERS.

Kit comes complete with instructions for installation and methods of labelling RP Indexer Bar

R P COMPUTER PRODUCTS 40 TRITON SQUARE LONDON NW1 3HG 01 387 4549

The Sensible Speller...™

80,000 *real* words for your Apple!



THE SENSIBLE SPELLER is the first COMPLETE spelling verification program for the Apple™ Computer. NO other spelling program includes as many options, or has a dictionary (on diskette) as large as ours, and includes a well known dictionary, too. THE SENSIBLE SPELLER now features the complete CONCISE EDITION of the RANDOM HOUSE® DICTIONARY. If you question the definition, pronunciation, or spelling of any word, you can simply look it up in the supplied hardcover dictionary.

Five versions of THE SENSIBLE SPELLER are available. There is no need to MUFFIN or transfer your files from one operating system to another.

WILL IT WORK WITH MY WORD PROCESSOR?

THE SENSIBLE SPELLER will work with most DOS 3.2, DOS 3.3, PASCAL,™ and APPLE CP/M™ word processors. A partial list of compatible word processors follows:

Apple Writer (all versions), PIE, Correspondent, Executive Secretary, Letter Perfect, Magic Window, Super Text™ (all versions), ScreenWriter, Superscribe, TXT/ED, Write-on, Word Handler,™ ED, Wordstar, Pascal Editor, Script II, and many others.

TM indicates a registered trademark of: APPLE, APPLE Computer Company • CP/M, Digital Research Corp. • SUPER TEXT, Muse Software • APPLE PASCAL, U.C.S.D. WORD HANDLER, Silicon Valley Systems, Inc. • RANDOM HOUSE and the House design are registered trademarks of Random House, Inc. Copyright 1982 Random House, Inc. Copyright 1983 Sensible Software, Inc.

THE SENSIBLE SPELLER package includes:

- an easy to read instruction manual
- two copies of THE SENSIBLE SPELLER program
- a main dictionary diskette, containing 40,000 of the most commonly used English language words (there is room to add approximately 10,000 of your own words)
- a supplementary dictionary diskette, containing the remaining 40,000 words in the CONCISE EDITION of the RANDOM HOUSE DICTIONARY
- the hard cover RANDOM HOUSE DICTIONARY, CONCISE EDITION

THE SENSIBLE SPELLER requires an Apple //e, II+, or Apple compatible computer equipped with 48K, DOS 3.3 and 1 or 2 disk drives. Two disk drives are required to delete or add words to the dictionary. The price is only $125.00

Sensible Software, Inc.

6619 Perham Drive,
West Bloomfield, Michigan 48033
(313) 399-8877
Visa and Mastercard Welcome
Add $1.25 postage and handling per program.

Whatever the system-insist on Kaga monitors



First choice for quality: Kaga Monitors enjoy a world-wide reputation for superb definition and clarity of image whether in Green, Amber, Black and White or full RGB colour.

First choice for value: Kaga quality at Kaga prices makes Kaga unbeatable.

First choice for reliability: Kaga Monitors are specifically designed for use with computers, custom-built for the functions they perform, with solid state circuitry to ensure utmost reliability.

First choice for compatibility: Kaga Monitors are compatible with all popular micro computers. Apple™, Acorn/BBC™, Commodore Pet™, IBM™, Osborne™, Tandy™, you name it, Kaga's made for it. Kaga RGB Monitors have built-in switchable interface allowing simple plug-in compatibility for most micros with RGB output. And the wide range of Kaga models means there's a Kaga ideally suited to your individual needs, whatever your computer.



First choice for availability: Wherever you are, there's a Data Efficiency Kaga dealer close at hand to advise and help you before and after you choose your Kaga Monitor. Ring 0442 60155 for details of your nearest stockist.

Kaga Models and Prices:
RGB Monitors from around £264 (retail)
Monochrome Monitors from around £99 (retail)
Apple II RGB Adaptor and RGB Cables for most popular micros are available.

Prices ex-VAT and correct at time of going to press

Trade and OEM enquiries welcome

DON'T SETTLE FOR SECOND BEST – INSIST ON KAGA TO COMPLETE YOUR SYSTEM

DE Data Efficiency Ltd

For all your Micro needs...and more. (0442) 60155

Sole UK Distributors, DATA EFFICIENCY LIMITED, Computer Peripherals Division, Finway Road, HEMEL HEMPSTEAD, Herts. HP2 7PS Tel: (0442) 60155 (14 lines) Telex: 825554 DATEFF G

Cdex™ Training for VisiCalc®

VisiCalc is one of the best, most comprehensive programs ever written. But it takes a considerable amount of time to learn how to use it. At least, it has until now. Because now it's possible to learn VisiCalc in the easiest, most effective, most straight-forward way possible. With *Cdex Training for VisiCalc.*

Cdex Training for VisiCalc is designed for both first-time and experienced users. So you can use it now as training, and later as an instantaneous electronic reference guide.

It's also completely interactive and self-paced to make sure you get the most out of it, and of course, it runs on the same personal computer configuration as the VisiCalc program.

How It Works
Cdex Training for VisiCalc instructs you in how to use the various VisiCalc commands and procedures, then asks you questions about them. Answer correctly, and you'll be presented with new information to work on. Answer incorrectly, and *Cdex Training for VisiCalc* will present the material in an alternative form so you can approach the problem from a different angle.

You'll also have the opportunity to practice what you've learned.

Work At Your Own Pace
Since you control the pace of the information presented, you can move through the program at any speed you like. And the faster you pick up the material, the faster *Cdex Training for VisiCalc* will give you new material to work on.

You can even skip over whole sections, change the sequence of the material, or, if you like, request that only certain information be presented. This selectivity is what makes *Cdex Training for VisiCalc* such a powerful reference tool.

It's Easy To See
Everyone knows what a picture is worth. So *Cdex Training for VisiCalc* uses graphics extensively to make complex VisiCalc concepts more understandable.

You Don't Even Have To Go By The Book
Cdex Training for VisiCalc comes with complete instructions, exercises, reference guide, and sample worksheets, but you don't have to use them if you'd rather not. The program is so easy to use and self-contained, it will walk you through itself from beginning to end.

Ask For A Demonstration
Cdex Training for VisiCalc can quickly make you a proficient VisiCalc user. Without your having to wade through an instruction manual. Or spending who knows how many hours in trial-and-error.



Part No. 1001-8010

But see for yourself. Ask your dealer for a demonstration of *Cdex Training for VisiCalc.* We don't make VisiCalc. We just make it easy.

VisiCalc® is a registered trademark of VisiCorp.™

Developed by Cdex Corporation in conjunction with Steven C. Brandt, PhD Stanford School of Business

cdex™

Computer Resources and Technology,
Alpha House, Rowlandsway,
Manchester M22 5RG.
Tel: 061-436 3426

3 WAYS TO GET MORE FROM APPLE.

1 HARDWARE

We have a range of New Products for Apple, a few are listed below.

1. XAD1-low cost Analogue to Digital Converter
 - 4 channels analogue, 0-5V, 12 bit
 - 4 reed relay outputs.
 - Real Time Clock . . . All for £99.00
2. XAD2-low cost Analogue to Digital Converter
 - 3 channels analogue, 0-5V, 12 bit
 - 2 channels programmable gain analogue
 - 2 reed relay outputs . . . All for £99.00
3. XBUB1-Bubble Memory Module for APPLE
 - Non-volatile
 - High reliability
 - Fast
 - Cold Boot from Apple . . .
 - only £495.00
4. XROM1-PROM System for APPLE
 - Put your BASIC Programs into ROM
 - Cold Boot from APPLE
 - I/O facilities on card
5. XCOUNT-6 channel pulse counter/timer
 - 4 counters up to 500kHz
 - 2 up to 4MHz
 - Interrupt at overflow
 - Frequency Comparison . . . £120.00

2 SOFTWARE

We can provide a high degree of programming support for all industrial, technical and professional applications, from machine code through to high level.



3 SYSTEMS

Xcalibur is a systems house specialising in the application of small computers to Industrial and Technical areas. We are able to provide full systems support on Apple and other small computers.



WITHOUT THEM YOU'VE ONLY GOT HALF AN APPLE . . .

apples grow on

For further information contact.

Xcalibur Computers Ltd.
Spencer House
3 Spencer Parade
Northampton NN1 5AB
Tel: (0604) 21051/4 Telex: 31612

xcalibur

"FILE-FAX"

We are sole UK distributors for the Apple II version of "File-Fax", probably the easiest to learn, simplest to use, database management system available today. Designed as a "filing system" for the businessman or hobbyist "File-Fax" offers fast access to files and records, retrieving information at exceptionally high speed.

AMAZING VALUE AT ONLY £128

Dealer enquiries welcome.

NOW LOOK AT OUR PRINTER PRICES !!!

OKI Microline 80 – £183 OKI Microline 82A – £315
OKI Microline 83A – £445 OKI Microline 84 (parallel) £695
Apple compatible parallel interface for about £72

All prices include carriage within the UK, add VAT at the standard rate when ordering. Cheques, Postal orders/money orders made payable to

JS BUSINESS SYSTEMS

Peverel house, The Green, Hatfield Peverel, Essex. CM3 2JG.
Telephone: Chelmsford (0245) 381166

HEYDEN DATASYSTEMS PRESENT A SELECTED LIST OF SOFTWARE FOR USE WITH APPLE COMPUTERS

TM

SOFTWARE

THE HOME ACCOUNTANT—

A complete financial management program that keeps track of all income and expenditure. Provides balance sheets, reports, graphs etc. Ideal for budgeting and planning. £41.00

FORMAT 80—

Professional word processing. Ideal for letters, contracts, and important documents. Arrange the text exactly as you want it to appear. £195.00

MICROVEST—

The proven share investment package. Includes 5 year history of 30 leading shares. Provides a rational basis for crucial decision making. £295.00

D.B. MASTER—

The database utility program that gives you fast access to all your business informtion. Easy handling, with helpful instructions displayed on screen £120.00

OTHER RECOMMENDED ITEMS

Order No.		Price exc. VAT
FINANCIAL PLANNING		
1638	Calcstar (req.Z80)	£ 75.00
1653	Supercalc (req.Z80)	£164.95
1643	Plannercalc package (req.Z80)	£ 49.95
1626	Visitrend/Plot	£149.95
1651	Visischedule	£149.95
1603	Versaform	£199.95
1617	The Invoice Factory	£105.00
1623	Visicalc	£120.00
DATA BASES		
1616	d.Base II (req.Z80)	£325.00
1604	P.F.S.	£ 75.00
1614	P.F.S. Report	£ 55.00
1627	Visidex	£125.00
1624	Visifile	£125.00
1636	Datastar (req.Z80)	£105.00
WORD PROCESSING/MAILING		
1652	1st Class Mail	£ 37.50
1644	Magic Window	£ 49.95
1646	Magic Mailer	£ 39.95
1635	Wordstar (req.Z80)	£129.95
1637	Mailmerge (req.Z80)	£ 49.95
1641	Screenwriter II	£ 69.95
1639	Pro. Easywriter	£ 94.50
1640	Pro. Easymailer	£ 79.95

ALSO AVIALABLE

Memory Expansion Cards
80 Column Cards
Business Graphics
System Utilities

HEYDEN DATASYSTEMS

Heyden & Son Ltd, Spectrum House, Hillview Gardens, London NW4 2JQ Tel: 01-203 5171 Telex: 28303

Heyden & Son Ltd, Spectrum House, Hillview Gardens, London NW4 2JQ.

Major credit cards accepted

Please send me information on

.....

Please supply me with.....

..... Cost £

Name

Company.....

Address

.....

.....

Tel WF/4/83

COPPICE SOFTWARE

MACROSOFT – THE ASSEMBLER

Applesoft Programmers!
Increase the speed of your programs by up to 25 times.

Assembly Programmers!
Increase your productivity and program maintainability.

All APPLE II programmers can benefit from using **MACROSOFT with THE ASSEMBLER**

MACROSOFT allows structured like statements which are translated to assembly programs which the fully comprehensive **THE ASSEMBLER** will convert to binary modules for execution.

You can use **THE ASSEMBLER** by itself but **MACROSOFT** must have **THE ASSEMBLER.**

MACROSOFT £32.40
THE ASSEMBLER £44.20
MACROSOFT & ASSEMBLER £69.00

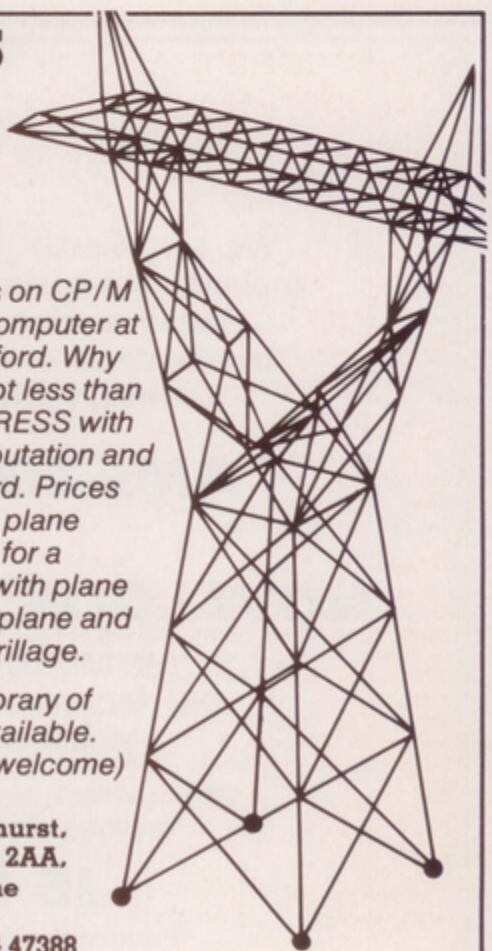
Housewives and Househusbands this program is for you to help elect menus. It will also generate shopping lists, calorie counts etc. We are talking about **Gourmet Software's. The Pizza Programs – Price £23.60**

Add VAT to all prices – post and packing inclusive.

Coppice Software, 7 March Street, Kirton in Lindsey, Gainsborough, Lincs. DN21 4PH. Telephone: (0652 648550)

STRESS from £300

MICROCOMP SOFTWARE



Structural analysis on CP/M and Apple microcomputer at a price you can afford. Why pay more or accept less than a program like STRESS with an established reputation and proven track record. Prices start from £300 for plane frames up to £850 for a complete system with plane and space frame, plane and space truss and grillage.

Comprehensive library of other programs available. (Dealer enquiries welcome)

Ashurst Lodge, Ashurst, Southampton, SO4 2AA, England. Telephone (042 129) 3223. Telex: CHACOM G 47388 Attn. COMPMECH.

ELKAN ELECTRONICS NEW APPLE BOOKS!!!

33 New Apple programs **£6.75**
101 Apple program tips & tricks **£6.75**
Visicalc for Apple II (training manual) **£12.75**
The Creative Apple **£12.75**

(add 50p per book p&p, up to max. £1.50 per order)

NANOS "quick-reference" cards (no need for those thick manuals)
Apple II and II Plus Basic **£2.50**

(Send for our list of other Apple books)

Send cash, cheque, Access or Visa card no. to:
ELKAN ELECTRONICS (Dept. WF), FREEPOST, 11 Bury New Road, Prestwich, Manchester, M25 8LZ or telephone 061-798 7613 (24 hours)

Peanut Price Breakthrough

Apple II compatible disc drives
Applemate £179.50 Slimline Super 7 £199.00

Peripheral Cards for Apple II

Disc drive	£27.95	Language (16K)	£37.12
Z80 CP/M	£46.50	Eprom Writer	£38.25
Printer (Cent'c)	£33.75	80 Column	£37.12
RS232C	£38.25	Integer Basic	£34.87

Carriage: under £100 add £3; over £100 add £5.
Add 15% to all orders for VAT. Cash, cheques, P.O.'s payable to

PEANUT COMPUTER,
Dewsbury, W. Yorks., WF13 3LX.

TWIG Golf Administrator

is the complete club management package. It is composed of a series of specialist software modules each taking care of an aspect – or linked aspects – of golf club management and administration.

Club *TWIG*

takes care of membership listings and details.

Stock *TWIG*

monitors bar stocks and automatically produces stock listings.

Manage *TWIG*

for budgeting and forecasting.

Pay *TWIG*

Wage and salary calculation including PAYE and NHI contributions and also encompasses the new statutory sick pay regulations.

Tiger *TWIG*

records details of individuals' rounds via a simple-to-use module and then analyses the performance, via higher technology, in order to appraise golfers' latest trends.

Score *TWIG*

for competition results. Can be easily and quickly logged in leader board sequence for screen display or printed for posting on notice boards. Handicaps can be updated directly and immediately via this module.

Handy *TWIG*

fulfils ALL of the new handicapping regulation requirements instituted on January 1st 1983. Handicaps – exact or playing – can be updated at the touch of a button.

Champion *TWIG*

maintains an overall record of all competitions and participants including a record of individual performances.

It's ripe for picking at:
***TWIG* SYSTEMS SOFTWARE**
6 High Street, Wendover, Bucks, HP22 6EA.
Tel: Aylesbury (0296) 623965/623915
Chip into the Computer Age with *TWIG*

NOW THERE'S AN EASIER WAY TO SELL KITCHENS

Kitchens International design, drawing, costing and ordering system takes the hard work out of selling kitchens.

It's a tried and tested system that allows you to design the kitchen on the computer and then produces costings in various manufacturers' ranges, plans and elevations to impress your customers, orders to suppliers of furniture and worktops and much, much more; all for less than the cost of a good secretary.

Kitchens International Design, Drawing, Costing and Order System

The system was initially designed by Kitchens International for use within their retail showroom to allow a designer to handle a greater volume of customers at a reduced cost per customer. The program itself was written by D.M.S. Electronics.

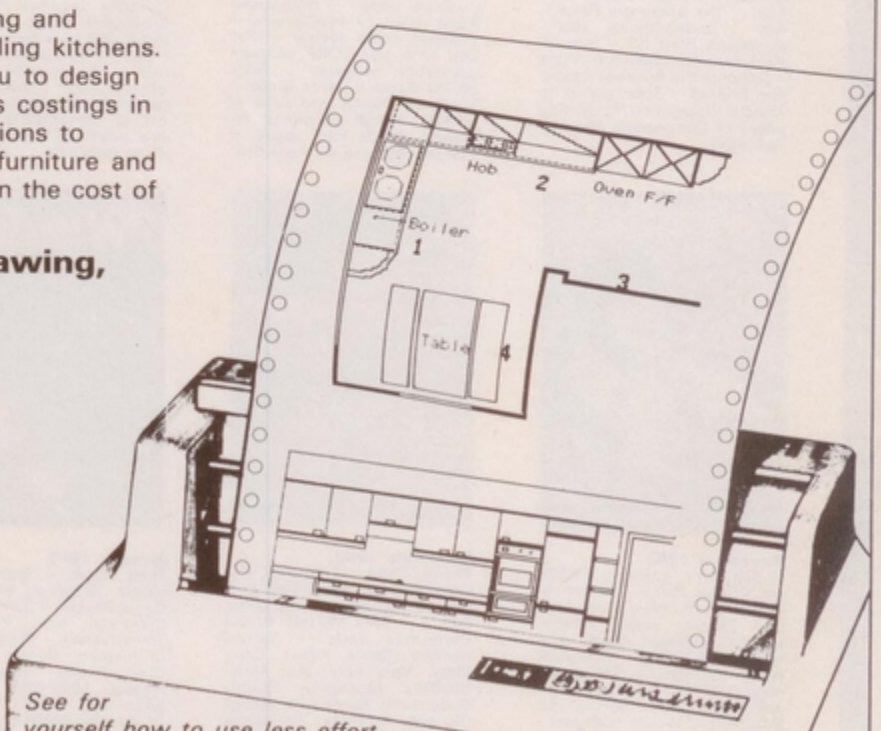
The system is based on a suite of programs to suit the Apple II micro computer with hard copy obtainable via an Epson MX-80 Printer.

With the aid of the system a kitchen designer can plan more easily, without errors; produce necessary plans and elevations for presenting to customers; cost the design in a variety of ranges and manufacturers; produce an unpriced order form for the client to sign; produce working drawings for fitters and electricians; produce an order to the manufacturer for furniture and worktops; using manufacturers' codes; produce a VAT invoice.

The system is easily worked and could be operated by a designer or typist.

Designs can be retrieved at a future time and reprinted, recosted or amended.

Full facilities are given for the stockist to amend the master files and create new manufacturers' price discs without the need for employing a programmer or being dependent on Kitchens International thus saving on going costs and allowing the stockist to tailor the system to his own requirements.



See for yourself how to use less effort and increase your business. Start by telephoning for further details or a no obligation demonstration.

KITCHENS INTERNATIONAL
621 London Road, Heeley, Sheffield, S2 4HT. Tel: (0742) 582622

Catch up on the articles you missed by sending for earlier issues. And when your collection is complete, keep it in one of our attractive binders. You can order by mailing the coupon on the right – or by phoning 061-456 8383 and quoting your credit card number.

November 1981
First review of the new Apple III – Games review (Temple of Apshai, Hellfire Warrior, Apple Panic) – Hayden Compiler review – BCPL, a fast language for the Apple – Psychological assessment by the Apple – Beneath Apple DOS book review – New software from the USA – Crash course in Basic, Part III – The role of speech synthesisers in schools – Historical review of computer literacy – Apple user profile: clothing manufacturing. PLUS three pages of Compucopia and six Appletips.

December 1981
Regain Step/Trace in Autostart Apples – Games listings (Apple Casino, Avoid, Calendar) – Games review (German Whist, Wizardry, Galactic Attack, Pool 1.5,) – Sinta Shape Manager review – Machine code techniques, Part IV (sorting arrays) – A/D converter review – Colour systems – Financial Controller review – Wordstar review – Crash course in Basic, Part IV – Debugging the Fortran Compiler – Care of discs – Electronic atlas – Pascal explored. PLUS four pages of Compucopia and seven Appletips.

July 1981
MicroModeller: crystal ball of the 80s? – Surround game (listing) – Bach and the Byte (review of Mountain Hardware's music system) – Apple programs that help the handicapped – Computers in primary schools – Why psychologists plump for the Apple – Use of Apple's unique EXEC files – Format 80 word processor review – The man behind Apple's UK success story – Analysis of CIS Cobol and its flexible file handling facilities. PLUS two pages of Compucopia and 11 Appletips.

January 1982
Apple scoop on Tomorrow's World – 1982: The Year of the Apple? – Games review (Wizardry) – Simultaneous equations without tears – Boosting machine code technique – Program Writer/Reporter review – Crash course in Basic, Part V – Machine code techniques, Part V (flagged bubble sorts) – Apple graphics, Part I (Apple's memory map) – Orbit accounting system review – Cost effective terminal computer – Moving hi-res graphics. PLUS four pages of Compucopia and seven Appletips.

August 1981
Networking systems (Constellation, Cluster One, Omninet) – Date validation routine – The Limits of My World (mathematical languages) – Textmaster WP review – Getting started with machine code – Running a preparatory school on an Apple – Software swop shop – Synthesiser as teaching aid – Integer to Applesoft Basic conversion – Apple machine language review – Apple user profile: Hill Samuel – The Market for MicroModeller. PLUS two pages of Compucopia and five Appletips.

February 1982
Games review (Olympic Decathlon, Dragons Eye) – CP/M: passport to exciting new world – Pascal file conversion program – Machine code techniques, Part VI (EVALuate a new function) – Crash course in Basic, Part VI – Elements of the Apple, Part I – Apple Graphics, Part II (high resolution graph drawing) – Making programs more user friendly – Getting round the memory map muddle – Apple user profile: Sea Fish Authority. PLUS three pages of Compucopia and seven Appletips.

September 1981
Consumers' guide to Ap music, Part I – Games rev (Starmines, Creature Vent Hi-res Soccer) – Ski-run g (listing) – Speed restrict with variables – Non-lin curve fitting – Machine c techniques, Part II (text in tion) – Crash course in Ba Part I – Dot matrix pri review – Apples in netw (modems, Prestel) – CAL ex sion coming – Computer ga for physically handicappe Apple user profile: SEG PLUS three pages of C pucopia and five Appletips.

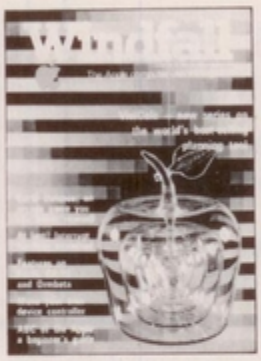
March 1982
Games review (Crush, Crun and Chomp) – Apple Me Forum – Data Factory revie Apple Graphics, Part III (disp ing histograms) – Printing annotated DOS disc directo Crash course in Basic, Part Start training for the A Olympics – Elements of Apple, Part II – Payroll pac for the Apple III – educational programs revie – DOS 3.3 to 3.2 soft switch – Workshop/Wor tuition course reviewed. F three pages of Compucopia four Appletips.



May 1982
A case for Applebus as a new international standard – Games review – Flight Simulator – Hi-res Planet Plotting – Microspeed review – Mathemagic review – Update on Printers (special 16-page printer section) – The Stationery Revolution – Understanding Microcomputers (Part IV) – Simulations Enhance Classroom Work – Computers in Business Education Studies – Speedy Way to Handle Histograms. PLUS four pages of Compucopia and four Appletips.



June 1982
New ways of linking Apples to the outside world – Introduction to Forth, Part I – Games review (The Prisoner, Pinball) – Apples in Medicine – Tasc Compiler review – Micros in process control – Building pictures with machine code – High-speed Apple links to mainframes – Wildport cards review – The Last One and CORP program generators reviewed – Book review (Apple II User's Guide) – Teacher's Toolkit and suite of primary school programs reviewed. PLUS four pages of Compucopia and six Appletips.



July 1982
Games review (Pursuit of the Graf Spee) – Elements of the Apple, Part IV – Apple '82 reviewed – Introduction to Forth, Part II – Making the most of VisiCalc's capabilities – CBasic and MBasic analysed – Ormbeta database reviewed – Crossword Magic reviewed – Make your own user port, Part I – Earth Defence game and listing – Asynchronous data transfer, Part I – School application of Cesil – Computers as an aid to concentration – PLUS four pages of Compucopia and three Appletips.



August 1982
Games review (Bandits, Suicide, Swashbuckler, Fly Wars) – Instruction file editor – Teach yourself Morse, Part I – VisiCalc section – Pastext II review – Asynchronous data transfer, Part II – Omnis review – A melody from your micro – Summary of 10 utilities – Make your own user port, Part II – Mah Jong – Number sorting – Elements of the Apple, Part V – Guidelines for buying a school Apple – Educational programs reviewed – PLUS four pages of Compucopia and two Appletips.



September 1982
Use of CP/M COPY and programs – Games re (Odyssey, Choplifter) – DO to VisiCalc – The Visi phenomenon – Words game (listing) – Tasc com review – Med-res graphics, I – Snapshot review – Lea Morse, Part II – Button for tiple choice testing – As hronous data transfer, Part Bag of Tricks review – G-V review – Medic review – Sc with Pascal – Memory program (listing). PLUS pages of Compucopia an Appletips.



November 1982
A beginner's guide to PEEKs and POKEs, Part I – Games review (Galactic Wars, Night Mission Pinball, Raster Blaster, David's Midnight Magic and three Quick Spins) – Think Tank (with listings) – Three 80 column cards evaluated – Visicalc: Brush up your algebra – Bit Stik graphic system reviewed – Pitfalls in producing educational software – Treasure Islands educational game reviewed – Med-res graphics, Part III (Ampersand routine). PLUS four pages of Compucopia and six Appletips.



December 1982
Think Tank – Doing the impossible in Pascal (listing) – Interactive editor-assembler, Part I – Take Visicalc to the Christmas party – Games reviews (Space Kadet, Crazy Mazy, Mars Cars, Star Maze, Deadline, Musicomp, Electric Duet, Time Zone) and listings (Humpty Dumpty, Christmas Card, Scram) – reviews of 'O' Level Aids, Tic Tac Show and Screenwriter II – Beginners guide to PEEKs and POKEs, part II – Z80 cards compared – PLUS four pages of Compucopia and six Appletips.



January 1983
Think Tank – Book reviews (Apple Graphics and Arcade Game Design) – Games reviews (Wizard and Princess, Transylvania) – Six-page guide to memory storage (guide to disc drives, new bubble memory, 128k RAM cards, disc back-up, mini-Winchester drives, new Apple drives) – Walt Disney's TRON – Graphmagic review – Installing Wordstar – Business cash flow with Visicalc – Pilot review – Interactive editor-assembler, Part II. PLUS four pages of Compucopia and eight Appletips.



February 1983
Think Tank – Interactive editor-assembler, Part III – Development of Scrabble on the Apple – Visicalc's storage command DIF – Games reviews (Escape from Rungistan, County Fair, Snake Byte, Snack Attack) – Software reviews (Structured Basic, GraForth, Visischeduler and Lisa and the IIe – Pascal Pointers – Network analysis – Handling interrupts – Makeweight grading system – Date-stamping DOS – Educational game (listing) – Formatted Applesoft. PLUS four pages of Compucopia and seven Appletips.



March 1983
Darts game listing – Think – Beginner's look at Sy Master – Games reviews (B of Blackpoole), Banner M Free Fall, Computer Scrabb Lower case displays in Ba Buying a financial spreadsh Reviews of Multiplan; A writer III; Geometry and surement, Drill and Prac CLIP – News about Lisa an IIe – Applesoft error handl Interactive editor-assem Part IV – Apple on a pig fa Fickle Finger proofing. P PLUS four pages of Co copia and four Appletips.

ctober 1981
icro Planner review – Games view (Computer Bismark, ttle of Waterlook, Raster aster) – Letter square puzzle – achine code techniques, Part (dumping screens to printers) Bulletin boards and personal mputer database systems – letype terminal program – ash course in Basic, Part II – nsumer's guide to Apple usic, Part II – Apple user ofile: SEGAS, Part II – Apples South African schools – ograms for primary schools. US two pages of Compucopia d four Appletips.

pril 1982
pple speeds the news – ames review (Castle olfenstein, Threshold, Pre-dent Elect) – DOS Toolkit oblems – Linking Apples to M – Home-grown boards om – Micro-Finesse review – sketball match analysis – Ele-nts of the Apple, Part III – MS accounting system review DOS disc directory, Part II – pple graphics, Part IV (3D imation graphics) – Apple '82 ucation Forum – A structured proach to teaching. PLUS ur pages of Compucopia and e Appletips.



tober 1982
nes reviews Knight of Dia-nds (the second wizardry nario) and Pig Pen – Think k (with listings) – Med-res phics, Part II (filling in pes) – Lisa assembler guage review – Magic of iCalc – VisiCalc Business ecasting Model review – ss reference listing program pple-vox speech synthesiser iew – Morse Code, Part III – nputerised flash card for ools – French Verb program iew. PLUS four pages of npucopia and seven Apple-



Logo T-Shirts
ONLY **£3.29**



Windfall Sweat Shirts
ONLY **£6.29**



Logo Sweat Shirts
ONLY **£6.29**

Latest additions to our popular range are Windfall sweat shirts, with mini-Apple motif in six brilliant colours. Now available in two child's sizes, and with red or blue background colour. Our original logo T-shirt and sweat shirts sport the giant-size Apple logo on a white background.

Windfall
The Apple computer users magazine

needs protecting!



Keep your copies of Windfall safe – and enhance your reference library with this handsome green and gold binder which holds a full 12 issues.

Allow 28 days for delivery.

£3.95



Giant eye-catching poster depicting the distinctive Apple logo in six colours, on a black background.

Size: 749mm x 481mm

£1.50

ORDER FORM

All prices include postage

SUBSCRIPTIONS

	Please enter number required in box	£
UK £12		
EIRE £13		
EUROPE £18		
USA – Surface mail £15		
USA – Air mail £25		
Rest of world – Surface mail £15		
Rest of world – Air mail £30		

BACK ISSUES

☐ UK £1.25
Rest of world
☐ – Surface £1.50
☐ – Air mail £2.50

1981		1982	
JULY		JUNE	
AUG		JULY	
SEPT		AUG	
OCT		SEPT	
NOV		OCT	
DEC		NOV	
1982		DEC	
JAN		1983	
FEB		JAN	
MAR		FEB	
APRIL			
MAY			

TOTAL

T-SHIRTS
£3.29
(UK & Overseas)

Small – 34"-36"	
Medium – 36"-38"	
Large – 38"-40"	
Extra Large – 40"-42"	

TOTAL

SWEAT SHIRTS
£6.29
(UK & Overseas)

	Windfall		Logo
	Red	Blue	White
Age 6-8 28"	N/A	N/A	
Age 10-12 30"-32"	N/A	N/A	
Small 34"-36"			N/A
Medium 36"-38"			
Large 38"-40"			
Extra Large 40"-42"			

TOTAL

NECKLACES
£4.99
(UK & Overseas)

TOTAL

POSTERS
£1.50
(UK & Overseas)

TOTAL

TIES
£4.99
(UK & Overseas)

Navy ☐
Brown ☐
Wine ☐

TOTAL

BINDERS
UK – £3.95
Overseas – £5.00

TOTAL

Payment: please indicate method (✓)

TOTAL

☐ Access/Mastercharge/Eurocard
☐ Barclaycard/Visa
☐ American Express

Card No. _____

Expiry Date _____

☐ Cheque/PO made payable to Windfall

Name _____

Address _____

Signed _____

Send to: Windfall, FREEPOST, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY.
(No stamp needed if posted in UK)

Or you can order by phone quoting credit card number and expiry date.

061-456 8383
9am - 5pm

NEW EDITION!

Out now – the new edition of our popular Apple catalogue of hardware, software and consumables. Super new discounts and all post free.

Like 10 WABASH SS/SD DISCS still only £15.95 + VAT.

For your copy of the new catalogue send £1.00 today (refunded on first order).

THAMES VALLEY SYSTEMS

T.V.S

GREYS HOUSE, 7 GREYFRIARS ROAD, READING, BERKS. RG1 1NU. Tel: 0734-581829 (2 lines)

µSPEED

The microspeed language system

Microspeed is a complete Forth Language System for the Apple II. Very fast processing speeds are obtainable by the use of an arithmetic processor card. This card has the additional benefit that it can be used for **APPLESOFT** and **PASCAL** programs.

Forth produces very compact code which is compiled into verbs, the extension of these verbs into a library can drastically reduce programming time.

Complete Forth manual with discs and processor card

£295.00 + VAT

DATABASE
Suite 1, 147 All Saints Road, Newmarket, Suffolk.
Telephone: 0638 667311

Advertisers in this issue

Adam Software	73	Metacrafts	85
Aimgram	85	Micromite Computers	7
		Micro Planning Services	14
Blyth Computers	73, 75, 77, 79	Microplan (Strand) Ltd	20
		Midland Computer Fair	50
Call Apple	83	Microcomp Software	90
Computer Services	79		
Computech Systems	12	Number One Computers	94
C/WP	35, 44, 45		
Cumana Ltd	70	Ormskirk Computers	46
Computersolve	75	Owl Micro-Communications	83
Compac	77		
Computronix	84	Pace	52
Crofton Electronics	85	Pact	13
CDEX	88	Pete & Pam	38
Coppice Software	90	Pynwon Software	80
Cyderpress	94	Peanut Computer	91
		Rocon	I/F/C
Dark Star Systems	69	Ranmoor Computing Ltd	4
Deverill Computer Services	51	R.P. Computing Products	86
Data Efficiency	87		
Database	94	SBD	5
		Sublogic	28
Elite Software	6	Silocon Valley Systems	8/9
East Central	84	Symbiotic Computer Systems Ltd	23
Elkan Electronics	91	Solidus International	59
Gate Microsystems Ltd	10	3M	81
Gram Business Systems Ltd	11	Twig Systems Software	91
		TVS	94
Heyden Datasystems	51, 90	Triangle Software	94
Hilderbay Ltd	24	Teletone Ltd	94
Hi-Fi Adapter	51		
		U Microcomputers	O/B/C
I.C.E.	15		
Interactive Structures	82	Vergecourt Ltd	I/B/C
JEL Computer Services	80	Woodland Software	50
JS Business Systems	89		
		X-Data Ltd	16
Kitchens International	91	Xcalibur	89

cyderpress

MICROCOMPUTER SOLUTIONS FOR BUSINESS

Apple Dealers and Level 1 Service Centre for Wallingford & South Oxfordshire

Specialists in the production of Software for the Surveying, Estate Agency & General Business Market.

OFFER FOR SALE A QUANTITY OF EX-DEMO & SURPLUS STOCK ITEMS AT **AMAZING PRICES**

Videx Enhancer II pack **£35** Apple High Speed Serial Interface Cards **£60** Microline Serial Card **£25** Simon Serial Cards **£50** Easywriter Word Processing packages **£75** Desktop Plan **£69** Apple Writer II **£40** Diskdean Database **£10.**

Silentype Paper – **going cheap.** 8" Disc Drives, recently overhauled **£690.** NEW Green Screen VDU's at **£77.50** each. Microsoft 16K RAM Cards **£80.**

Also available all New Apple items, printers, Winchester Disc Drives, etc. Word processing service, Wordstar Training, Consultancy.

For further information please call **Cyderpress:-**
"The Vat" 8a Castle Street, Wallingford on Thames, Oxfordshire.
Tel: (0491) 39538/37769

apple computer Sales and Service

the apple corps

The unique register for Apple people – it provides a central listing of individuals (full time and part time), small software houses and large software houses.
Now anybody wanting specialist services need only contact the apple corps for details of the six most appropriate entries.
It's economic, as well as comprehensive – to get six names and addresses costs just £25, and it's even cheaper the second time it's used.
And to be included in the apple corps ? – only £5, a once and for all payment.
Ring or write for a registration form NOW, to:

number one computers

Francis Street, St. Helier, Jersey, Channel Islands.
Telephone: (0534) 77268

SOUNDCHASER

COMPUTER MUSIC SYSTEMS

AND

Modula-2

NOW AVAILABLE FROM

Triangle Software Limited

01-223 4192

12" GREEN PHOSPHOR MONITORS

£42!

+ £4 P&P (INCLUDES VAT)

12mHz for 40, 80 Column Displays

GUARANTEED

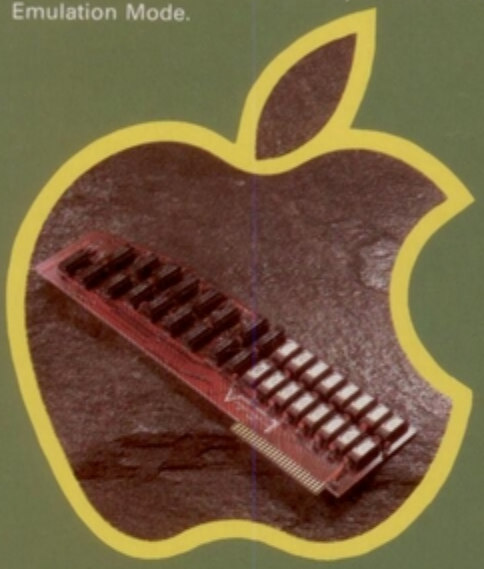
Order direct via:

Teletone Ltd., 13 Small Street, Bristol BS1 1DE.
Tel: (0272) 277462

LET US INTO YOUR APPLE II

Ramex 128

- ★ 128 Memory Expansion Board using latest 64K Ram chips.
- ★ Supplied complete with Disk Emulation and Memory Management System for Apple DOS.3.3.
- ★ Memory Management System uses up to two existing 16K cards in your computer configuration.
- ★ Integer/Applesoft firmware cards fully supported.
- ★ The Vergecourt Super Expander Software package allows the Ramex 128 to display *VISICALC WITH 136K* of memory.
- ★ Access times can be increased by as much as 300% in Disk Emulation Mode.





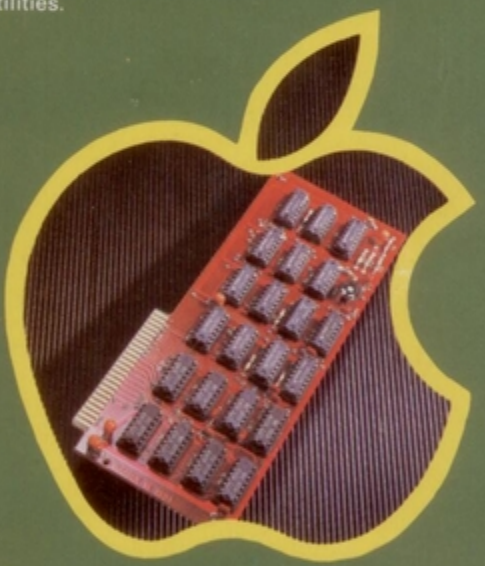
Software

- ★ Super Expander — using 128K Ram Board expands Visicalc to 136K usable memory
- ★ Expander — using 2 × 16K Ram Boards expands Visicalc to 50K usable memory
- ★ Consolidator — to consolidate your Visicalc worksheets
- ★ Manager — for relocation of DOS onto a second 16K Ram Board
- ★ Locksmith — bit copier to take back-ups of your vital programs.
- ★ Inspector — selection of necessary utilities.
- ★ Watson — the Inspectors assistant with additional utilities.

Disk Drives for Apple II

- ★ Three versions of this product currently available in either two, three or four pack configurations.
- ★ Capacity of 622K, 933K and 1244K bytes.
- ★ Maximum file sizes have therefore been increased to 311K bytes.
- ★ Integral switch made Power supply unit for much improved reliability.
- ★ Interface Board and Cable assembly included.
- ★ Formatted for IBM 3470 in 76 tracks. Conversion capability between Shugart, Teac and Pertec single and Double Sided Drives.





Ramex 16

- ★ The first 16K Expansion Board for the Apple to incorporate on-board Ram re-fresh.
- ★ Language card capability to run Pascal, Integer, 56K CP/M etc.
- ★ DOS Relocation capability using 'The Manager' software by Vergecourt leaves approximately 45K of Motherboard Ram available.
- ★ Over 7000 sold worldwide and available through all major Apple dealers.
- ★ Easy installation as no strap and header chip need to be connected.
- ★ Multiple boards can be used dependant upon application.

Visicalc is the registered trade mark of Visicorp
Apple II is the registered trade mark of Apple Computers Inc.

VERGECOURT LTD

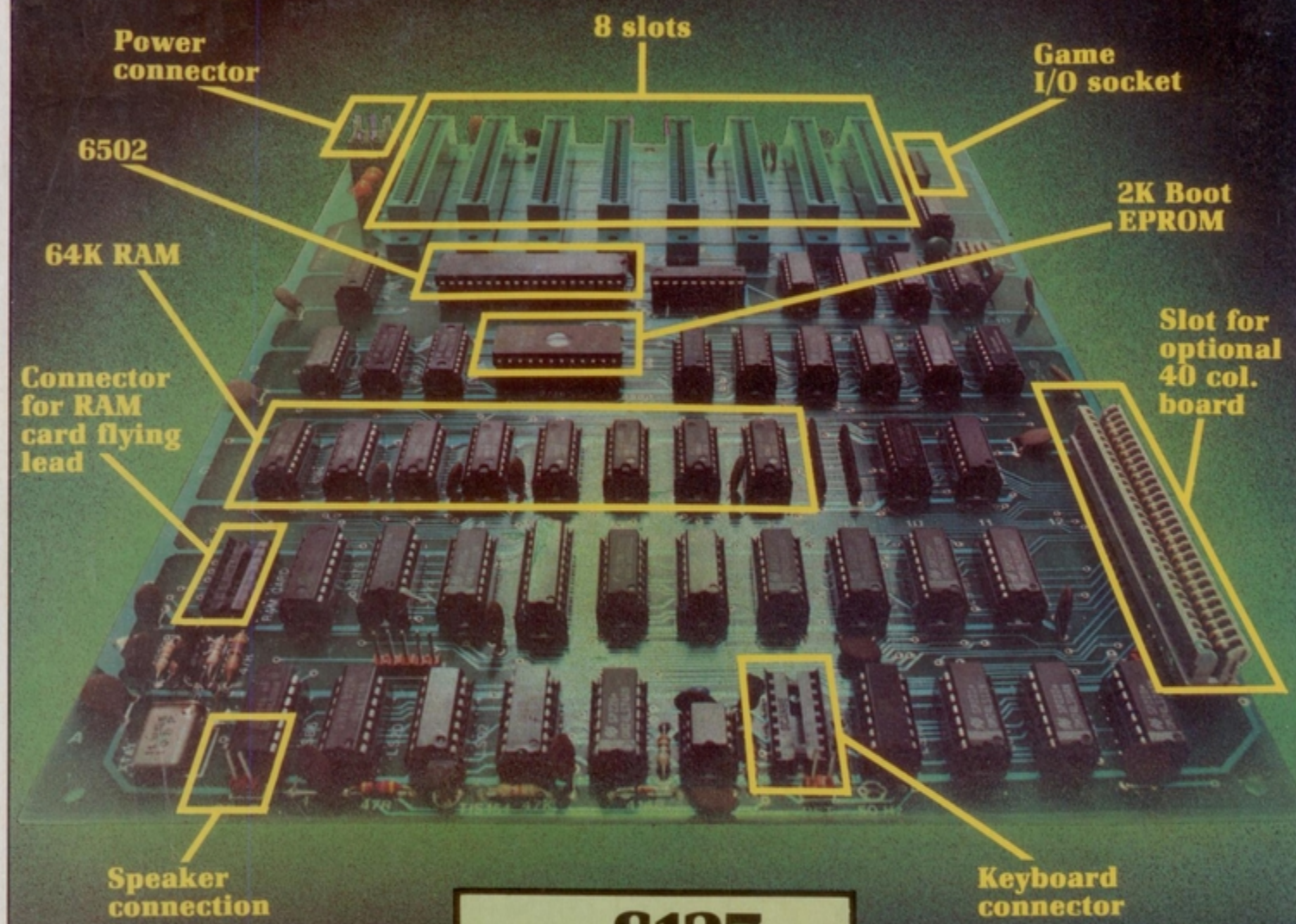
DDP RESEARCH & MARKETING

Reg Office: 17 Nobel Square, Basildon, Essex SS13 1LP.
Telephone: 0268 728484.
Telex: 995323

U-COM 2

a new compatible mother board

OEM's • System builders • Enthusiasts • Entrepreneurs



An Applebus compatible board for OEM's, system builders, enthusiasts and..... entrepreneurs.

Runs all Apple II+ software and supports all Apple II+ boards including RAM and 80 col. display boards.

The display is optional via a 40 col. display board or by 80 col. boards. The only thing we've omitted is the cassette interface.

1000 off	**£127** each
100 off	**£159** each
10 off	**£199** each
1 off	**£249** each

Prices are for complete and tested boards and exclude VAT and delivery. Documentation included with each order.

The 40 col. display board is priced at £20, £25, £31 and £39 and power supply at £37, £46, £57 and £71 respectively.

U-MICROCOMPUTERS

'make it easy on yourself'

U - Microcomputers Ltd.,
Winstanley Industrial Estate,
Long Lane, Warrington,
Cheshire WA2 8PR, England.
Telephone 0925 54117
Telex 629279 UMICRO G

U - Microcomputers Inc.,
300 Broad Street, Stamford,
Connecticut 06092, USA.
Telephone 203 359 4236
& Toll Free (800) 243 2475
Telex 965999 O&S STD

Apple, trademark Apple Computer Inc.